The Chemical Age

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Notes and Comments

The Alkali Inspector's Annual Report

GOVERNMENT inspectors may be divided into two groups. One comprises a considerable staff of highly estimable individuals whose activities, owing to the nature of the legislation under which they work, tend to hamper that freedom which is essential to industrial progresss, and the other, a smaller group, embraces those whose visits are invariably welcomed and whose advice makes for greater efficiency. To the latter class belong the Chief Inspector and the six district inspectors under the Alkali, etc., Works Regulation Act, an account of whose work during the past twelve months forms the subject of the 68th annual report just published by Mr. W. A. Damon, the Chief Inspector. Mr. Damon reports with satisfaction that on no occasion was it considered necessary to institute proceedings against any works for infringement of the provisions of the Act. This fact has led to the belief in some quarters that actually no infractions occurred or that no delinquents were discovered, but the report points out that this is far from being the case. Details given in the report on the various registered processes show that inspectors have frequently to call attention to faults, but, owing to the fact that genuine efforts have always been made to remedy the troubles as speedily as possible, it has not been thought expedient or necessary to resort to extreme measures.

In eight cases, works were discovered working registrable processes without having applied for a certificate. In these cases pleas of ignorance were made an accepted, stamp duty being of course paid up to date in respect of all certificates which ought to have been obtained. Mr. Damon emphasises that the onus of applying for registration is on the owner of a works and that ignorance of the Act does not ensure a lenient view being taken of an infraction, which may result in heavy penalties being imposed. Two serious accidents involving loss of life were brought to the notice of the district inspectors during the year. One was at a registered works, where a charge of spirit caught fire, and the other was at a non-registrable tin works, where an unusual case of arsenical poisoning occurred. Both cases were the subject of thorough investigation by Home Office officials. The report states that the chemical industry, depending as it does so largely upon the basic industries, coal, iron, steel, cotton, wood and agriculture, was seriously affected in all its branches by the exceptional depression which prevailed for the greater part of the year. On the other hand, the abandonment of the gold standard by this country in September resulted in a certain stimulation of trade. This was particularly apparent in the tinplate industry in South Wales, in the non-ferrous metals trade and in the textile trade. There appears too, to have been a considerable increase in the demand for artificial silk. The fluctuation in the exchange value of the pound and the unsettled conditions in the Far East led to difficulties in those industries which compete in the foreign market. The influence of new legislation on the chemical industry, adds Mr. Damon, will be awaited with interest, and it is much to be hoped that manufacturers will be able to work their plants at fuller capacity than in the past year.

Fewer Works in Operation

As to the general aspects of the alkali industry in this country, the Chief Inspector's report notes that the number of registered works in 1931 was 984, which involved the inspection of 1,793 separate processes. There was thus a reduction from the preceding year of of 58 in the number of works and of 118 in the number of separate processes. The comparative figures for 1929 were 1,083 registered works and 1,975 separate processes of manufacture under inspection. A study of the details given in the report reveals that the decrease is largely due to the cessation of sulphate of ammonia and tar processes. All the processes at a registered works are not necessarily subject to inspection, and it sometimes happens that complaint, due to such a non-registered process, is made against a registered works. Thus, at a works in Yorkshire all the processes registered were found to be satisfactorily controlled, yet the acidity of the main chimney gases was certainly unduly high. The cause of this high acidity was eventually traced to a non-registered process where a quantity of nitre cake was used. The company has agreed to discontinue the use of nitre cake in the process unless a corresponding amount of carbonate is added to neutralise the acid in the material.

A section of the report is devoted to a review of the position regarding sulphate of ammonia, which, owing to the decline in the price obtainable, is giving the gas and coke oven industries considerable anxiety. With sulphuric acid at its present price, a loss must almost certainly be incurred in the production of sulphate of ammonia, except, perhaps, in the case of the most efficient works and those which are particularly fortunately situated. There is, moreover, the ever-present difficulty of disposal of effluents. Much experimental work is in progress designed either to avoid the use of sulphuric acid or to produce an ammonia compound other than sulphate, which may be sold at a profit. The whole subject of effluent disposal and ammonia recovery is, as Mr. Damon

points out, receiving the attention of the Institution of Gas Engineers, which receives an annual report from its Ammonia and Liquor Effluents Sub-Committee at its research meeting each autumn.

Chemical Unity in America

RECENT correspondence has served to show that although there is no great eagerness for immediate action there is a real need for the consideration of some measure of unification in the chemical industry in this country, and it is probable that Professor G. T. Morgan will have something to say on the subject in his presidential address at the Nottingham meeting of the Society of Chemical Industry on Wednesday week. Our friends in America are faced with similar problems to those which confront the industry in this country, and they are at present turning their attention to a plan for the consolidation of association activities submitted to the Manufacturing Chemists' Association by Mr. E. M. Allen, president of the Mathieson Alkali Works.

In brief, the Allen plan is as follows: (1) Organise an American Chemical Institute, using the Manufacturing Chemists' Association as a nucleus. (2) It should have offices in both Washington and New York. (3) The parent organisation should have a board of directors that would give representation to each major branch of the industry. Its president, executive committee, and a paid secretary and treasurer should be elected by the board. (4) There should be a sufficient number of assistant secretaries to handle the details of each division of the institute. Each division should have its managing committee, with a chairman appointed by the board, heading the division committee. The board of directors of the parent organisation should be elected by the members of each division. (5) The dues of each division should be handled by the division itself, with a certain percentage, depending upon the amount of dues of each division, going toward the upkeep of the parent organisation.

The Dictates of Economy

MR. ALLEN laid his plan for consolidating and strengthening the activities of the various trade associations and institutes within the chemical industry before a recent meeting of the American Manufacturing Chemists' Association. He cited the work of the American Petroleum Institute, which so successfully brought together in one strong organisation many smaller groups representing branches of the industry or local and regional activities. The parallel holds closely except, perhaps, for the fact that the greater diversity of products and processes in chemical manufacture and distribution involves a greater number of problems and controversial issues on which agreement is difficult or impossible. Yet there can be no doubt that in its dealings with public matters of broad national interest, real advantage accrues from an organised authority that represents an entire industry. The Allen plan finds an important ally in present business conditions. The dictates of economy are likely to be such as to compel many organisations to reduce or eliminate the costly duplication that now exists among many of the chemical associations and institutes. Considered in the light of reduced income some of the independent and seemingly essential activities appear much less important as compared with the broad objectives that would be achieved by a consolidated organisation.

It is suggested in an editorial note in the June issue of "Chemical and Metallurgical Engineering" that the first step in the programme might well be taken in a conference of the heads of the various associations where the common problems of the industry could be discussed and assigned to one group or another for solution. If such an informal and flexible council or alliance were made up of the industrial representatives rather than the paid association executives, matters of relative prestige and petty jealousies would soon give way to the broader view of the best interest of the industry as a whole. With this attained, it would be a short step indeed to Mr. Allen's ideal of an American Chemical Institute that would, in the words of Mr. Lammot du Pont, president of the Manufacturing Chemists' Association, "represent its membership in a dignified and fair manner; not pressing for advantages which are unfair or detrimental to the country as a whole, but always standing up for its rights if they seem to be imposed upon."

Chemical Warfare

THERE are two outstanding characteristics about the report of the special committee on chemical and bacteriological warfare appointed by the General Commission of the Disarmament Conference at Geneva, to which extended reference is made elsewhere in this issue. One is that this committee is the only one appointed by the Disarmament Conference which has reached unanimous agreement and the other is that this is the first time a really comprehensive and clear definition of chemical warfare has been achieved.

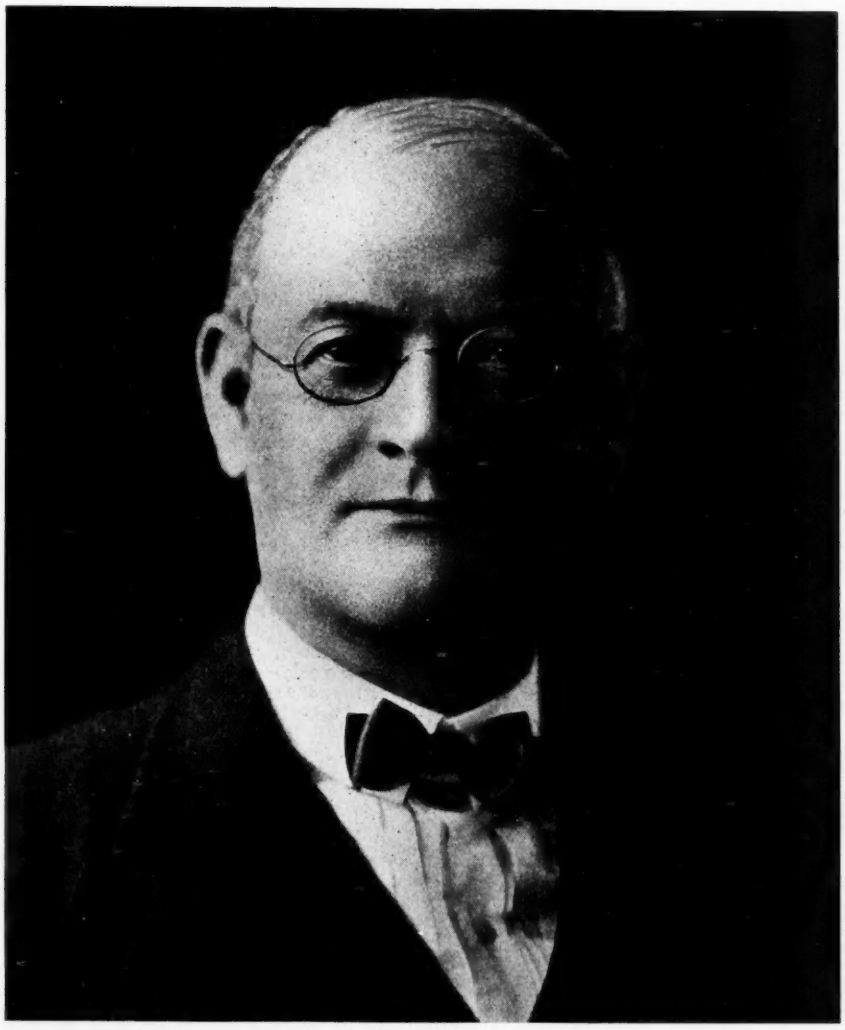
Consideration had to be given to the fact that chemical substances only become means of warfare through the use which is made of them in war—a factor which marks a distinction between chemical means of warfare and ordinary weapons. The committee considered that chemical substances in whatever way employed should be included in qualitative disarmament and therefore adopted a general formula intended to cover all methods of use. It is clear, of course, that qualitative disarmament only applies to the use of chemical substances if such use is designed to injure the enemy. They are not necessarily used during a military action properly so called; for example the poisoning of wells or springs from which an enemy might possibly draw water would be prohibited. On the other hand the use of chemical substances for the maintenance of armies—for example the use of disinfectants and medicaments and the means of destroying harmful animals and parasites—is not in question.

On the question of bacteriological warfare the committee expresses the view that this form of warfare should be included in qualitative disarmament quite irrespective of whether it answers to any of the criteria laid down in the general commission's resolution. It is so particularly odious that it revolts the conscience of humanity more than any other method of warfare. It constitutes one of the methods most threatening to civilians since epidemics as they spread, attack all human beings indiscriminately and there is no sure methods of arresting their effects. Taken as a whole the report is by far the clearest statement of the position of chemical warfare yet published.

Mr. F. E. Hamer

Retirement from the Editorship of "The Chemical Age"

THE many friends of Mr. F. E. Hamer will learn with great regret that reasons of health have compelled him to seek partial retirement, and as from the end of June he has relinquished the Editorship of THE CHEMICAL AGE, a position which he occupied with such distinction since the first issue of this journal. The news of Mr. Hamer's cessation from active work will be received with keen sympathy not only by chemical people in this country and by his many chemical friends in the United States, but also by the whole journalistic profession of which for a full half century he has been a leader of no mean order.



Mr. F. E. HAMER, J. P.

It was only late in life that Mr. Hamer, deserting the more nebulous attractions and qualities of a popular press which from his point of view was on the decline, joined the firm of Benn Brothers, Limited, and devoted himself to trade and technical journalism. There was nothing remarkable in this move but to those who retain their respect for the best traditions of the fourth estate. Grounded in true journalistic principle learnt under no less a master than the late C. P. Scott of the "Manchester Guardian," Mr. Hamer has never been able to allow himself to be brought down to the yellow or yankee methods which in the last twenty years have reduced the newspaper to the crossword puzzle and the football coupon. It was therefore a natural thing that some thirteen years ago he should associate himself with the greatest group of industrial and commercial journals in the world and join the Benn organisation. He first served in various capacities on special work associated with the "Cabinet Maker." For a time he edited "Aeronautics," when the science of flying required the best journalistic support, and "El Commerciante," a journal that even then sought to do for South American trade what "Industria Britanica" is now doing on a much larger scale, and from that he assumed the complete responsibility for THE CHEMICAL AGE. He brought to these positions a ripe experience as a journalist, a facility and charm as a writer which belong to the very first class, and a geniality and personality with which many of our readers have been privileged to become acquainted.

For nearly eight months past Mr. Hamer's health has given cause for anxiety. In the latter part of last year he underwent an operation with a courage that was characteristic of him. That operation proved disappointing in its results, and no less than four more have since proved to be necessary. While all the circumstances now point to a recovery, they

involve a limitation of his former activities, and Mr. Hamer has therefore been, to the immense regret of the firm and his colleagues, obliged to put himself on the retired list as from July 1.

He will not, much to our delight, completely sever his connection with Benn Brothers, Limited, or THE CHEMICAL AGE, for at the unanimous wish of all his colleagues he will retain his position on the board of the company and remain a director.

Perhaps no better example can be given of the strength and qualities which Mr. Hamer brought to bear upon his work than the fact which readers of THE CHEMICAL AGE will remember that a couple of years ago, as a member of the staff, he was invited to join the board of directors, and thus add proprietorial responsibilities to his executive work. About the same time he was appointed a Justice of the Peace for Middlesex.

He carries with him the affection of all his colleagues, and the best wishes of all the readers of this journal for a return to his former health and vigour.

The proprietors take pleasure in announcing that Mr. A. C. Cross, one of the most experienced of the younger school of trade journalists, has been appointed to succeed Mr. Hamer as Editor of THE CHEMICAL AGE.

The Society of Glass Technology

A Study of the Volatilisation of Glass

THREE papers were presented at the 145th ordinary general meeting of the Society of Glass Technology at Sheffield on June 15, when Mr. Edward Meigh, president, was in the chair. The first was "A Study of the Volatilisation of Glass—The Behaviour of the Soda-Silica Glasses," by E. Preston and Professor W. E. S. Turner. Seven pure glasses of the system Na_2O-SiO_2 had been selected for study in continuing the work on volatilisation which had been in progress for some time in the Department of Glass Technology, Sheffield. The glasses were melted in platinum. From a study of the rates of volatilisation of alkali from these glasses, the conclusion was reached that there was a continued well-defined existence of the two compounds $Na_2O.SiO_2$ and $Na_2O.SiO_2$, at a temperature of 1,400°, approximately 530° above the melting point (874°) of the disilicate. Also, it seemed a possible inference that in commercial soda-lime-silica glasses in the molten state the sodium was present mainly as the disilicate.

It was shown that under precisely similar conditions, the loss by volatilisation, for any glass, was proportional to the surface area of molten glass exposed. All losses were corrected for loss of platinum. The non-volatility of lime and silica, at least up to 1,400°, was confirmed. The influences of time and temperature were investigated. The experimental results fitted closely the equation derived by theoretical considerations of the experimental conditions, for the effect of time upon the progress of volatilisation. The relationship between loss by volatilisation and temperature was found to be of the usual vapour pressure form. The actual values of the vapour pressures of the volatilising alkali had been determined for some of the glasses, and again, as in the case of the lead-alkali-silica glass, the initial rates of loss were found to be directly proportional to the vapour pressures.

Routine Testing of Bottles

A paper on "Statistical Methods for the Routine Testing of Bottles" by F. C. Flint and A. K. Lyle, was a communication from the laboratories of the Hazel-Atlas Glass Co., Washington, U.S.A. The authors divided the testing of bottles into three classifications—research tests, dead line tests and quality tests, and in order to demonstrate the value of statistical treatment in the interpretation of results, several sets of data, with their statistical analysis, were given. The necessity of perfect control of the actual method of testing and of reliable workmanship so as to give experimental accuracy, was stressed, since the aim of the examination was to find the cause of the variability in the glass itself.

The first set of results examined consisted of impact breakage values obtained by the use of a 5 oz. steel ball, dropped on to four sets of bottles. Judging from a simple inspection of the results, nothing could truly be concluded. The number of tests made, the arithmetic mean, the standard deviation, the "effective average," or the difference between the mean and the standard deviation, the standard deviation of the mean and the standard deviation of the difference between two means were also explained and considered. Values obtained from a study of the results from 25 bottles per set were not sufficiently conclusive, hence the number of bottles was increased to 100 per set, and the statistical analysis repeated on these figures. It was then found that differences in the strengths of the sets of bottles could be definitely concluded. The data obtained from an internal bursting pressure test done on sets of 25, and later on 100 bottles, were analysed fully, and it was shown that it was essential to test a sufficient number of samples if definite judgment on strength were to be made.

Ageing of Glassware

A paper on "The Ageing of Glassware," by J. B. Murgatroyd, was a communication from the laboratory of the British Hartford-Fairmont Syndicate, Ltd., Greenford. Mr. Murgatroyd referred to the well-known changes in volume observed in glass thermometers for some time after manufacture and stated that he had found quite large differences in the mechanical strength of bottles subjected to surface treatments, such as attack by acids. In order to test the effect of storage conditions, ware was stored in the open and subjected to all weather changes, while other samples were stored indoors in a warm, dry atmosphere. Tests were then made on the bottles, the thermal endurance, bursting pressure, and the breaking impact being measured. Tests were conducted after storage times ranging from one to 120 days.

The results obtained were given in tabular form, and the variations observed were discussed together with degree of accuracy to be expected in the different tests. It was concluded that no appreciable change in the strength of machine-made bottles occured for at least one month after manufacture, and very little change, if any, occurred in the thermal endurance for three months after manufacture.

Vitamin C Controversy

Views of Dr. J. Tillmans

THE work of Rygh in Norway appeared but a few months ago to have rendered it highly probable that methyl nornarcotin was identical with vitamin C, but this belief is not shared by Dr. J. Tillmans and his collaborators, who, according to a lecture reported in the "Chemiker-Zeitung" (June 22), incline to the opinion that a hexuronic acid of the probable formula CH_2OH-CO $(CHOH)_4$-$COOH$-H_2O is responsilbe for the anti-scorbutic properties of fresh fruits and vegetables. This substance was first prepared by Györgyi in 1928, and the same worker has since demonstrated the antiscorbutic value exerted by minute quantities of the pure acid. Doubt had previously been cast upon the accuracy of the narcotin theory, Zilva at the Lister Institute having pointed out, for example, that pure methyl nornarcotin produced no modification in the properties of a scurvy-inducing diet. Subsequent work by Tillmans confirmed the accuracy of this last observation. It would nevertheless be premature to draw any final conclusion from the hexuronic acid theory, and one is left with a very concrete impression of the experimental difficulties involved in vitamin chemistry.

Activated Iron Oxide and its Use in the Chemical Industry

By PROTEUS

IRON oxide and its hydrated forms are largely used in the chemical industry. They are either derived from natural sources or obtained as by-products of chemical processes or manufactured by precipitation from solutions of iron salts. Whatever their origin may be, their chemical and physical properties differ widely, being dependent on the conditions and mode of formation. The materials vary in regard to colour, texture and chemical activity; some are chemically inert, whilst others exhibit a varying degree of reactivity towards chemical agents.

Constitution and Chemical Reactivity of Iron Oxides

Various theories have been advanced in regard to the combination of water and iron oxide, and the function played by the water in chemical reactions. Some investigators hold that the degree of hydration determines the activity of an iron oxide. They believe that a series of hydrated iron oxides exists, which vary in composition from $\frac{1}{2}$ to 3 mols. of H_2O per mol. of Fe_2O_3 (2). Extensive investigations on the subject of ferric hydrates (3) indicate that only one crystalline hydrate, namely, the ferric mono-hydrate, occurs. This compound has not been produced synthetically, but there are natural and artificial precipitated oxides of an amorphous nature, which exhibit properties similar to those of the mono-hydrate. Two modifications of them exist. One is yellow and is apparently essentially ferric mono-hydrate, the other is reddish brown and may hold its water in either an adsorbed or dissolved condition (or both), such as "Lux," a by-product of the aluminium industry.

They are usually very active and are the least sensitive materials towards variations in moisture. The ferric mono-hydrate loses its water on heating. Dehydration, however, is not complete until a temperature of 200° C. or more is reached; even then the rate of decomposition is slow. Rehydration does not occur, and the activity of the oxide suffers in consequence. It is even possible to render the material completely inert by overheating (1 and 4). The loss of water by amorphous oxides is not serious and can be restored, except when a change in the molecular structure of the oxide has taken place as the result of over-heating, which is usually outside the range of practical possibilities in chemical processes. The ferric mono-hydrate is often regarded (5) as a measure of the activity of an oxide. This assumption, however, is not justifiable in view of the fact that the majority of the most active iron oxides belong to the amorphous or colloidal group, of which "Lux" is the foremost representative.

The Origin and Composition of "Lux"

"Lux" is the name of a commercial hydrated iron oxide, which is obtained in the course of manufacture of aluminium hydroxide from beauxite, a mineral originally discovered at Les Beaux, near Arles (South of France), but now mined in most parts of the world (America, Germany, India and Ireland). Its principal constituent is alumina (50 to 60 per cent.), which is accompanied by iron oxide (present in varying quantities up to 27 per cent.), silica (0.25 to 15 per cent.), titania (1 to 10 per cent.), and combined water (10 to 30 per cent.) The aluminium hydroxide is extracted from the mineral either by the "wet" (Bayer) or the "dry" process. Whilst the former produces an entirely inactive iron oxide, the latter yields a highly reactive product, named after its discovered "Lux."

This is obtained in the following manner: The finely ground raw material is mixed with sodium carbonate and coal, before the mixture is carefully heated in a revolving reverberatory furnace. The discharged granular material is cooled and then lixiviated with water. The alumina goes into solution as sodium aluminate, whilst iron hydroxide together with the other mineral impurities remains behind as a residue, which is filtered off. Notwithstanding the varying composition of the minerals employed in the process, a residue of a surprisingly consistent composition is obtained by a judicious choice and blending of raw materials. It contains on an average 35 per cent. ferric hydroxide, 10 to 15 per cent. of silica and alumina, 10 to 4 per cent. of titanic oxide, 6 to 8 per cent. of sodium carbonate or hydroxide and up to 40 per cent. of water. The iron is present in a colloidal form and is practically all chemically active. The other constituents assist the fine state of division, in which the iron is present, and increases the surface of the material, whilst the sodium carbonate has a beneficial influence on certain chemical reactions in which the material is used. The moisture too, is indispensable to a number of processes, although its rôle is not easily explained.

The Theory of Adsorption

On account of the large surface offered by active materials, they possess always a high capacity for moisture, and thus lend support to the theory of adsorption. According to this theory, water is adsorbed on the surface of the oxide particles, and acts as a "vehicle," *e.g.*, in the reaction between hydrogen sulphide and iron oxide in the purification of town's gas. As hydrogen sulphide is appreciably soluble in water, its concentration in the adsorbed moisture is increased as compared with the concentration in the gas, and thus the rate of reaction between hydrogen sulphide and iron oxide is also increased. In the absence of sufficient water, the large capillaries are not wetted, and the reaction is consequently impeded. On the other hand, an excess of water may have a similar effect. In this case the rate of diffusion, which is slower in water than in gases, becomes the governing factor in the reaction. Although this theory seems to explain satisfactorily the function of water in the sulphiding process, it is not possible to ignore the effect of water on the molecular structure of the iron oxide itself (2 and 6). It is, therefore, difficult to decide in favour of any one particular theory. Whichever theory may be favoured, it is certain that each oxide possesses an optimum moisture content, which must be ascertained and maintained within the determined limits, whilst the oxide is in use.

Application of "Lux" in the Gas Industry

"Lux" has been extensively used for the removal of hydrogen sulphide from gas for many years. The consumption of this material has increased appreciably since it was first introduced in 1879, and now approaches about 100,000 tons per annum. Its qualities are particularly valuable in a process where a high degree of activity and process efficiency is required, such as the purification of town's gas. The latter contains hydrogen sulphide in a concentration of about 1 per cent. by volume and often less. The reaction is usually expressed by the formula:—

$$Fe_2(OH)_6 + 3H_2S = Fe_2S_3 + 6H_2O.$$

The ferric sulphide formed is easily re-oxidised in the presence of water to iron hydroxide and free sulphur according to the formula:—

$$2Fe_2S_3 + 6H_2O + 3O_2 = 2Fe_2(OH)_6 + 6S.$$

Ferric sulphide is only formed under alkaline conditions. When the reaction takes place under neutral or acid conditions, ferrous sulphide is formed in accordance with the formula:—

$$Fe_2(OH)_6 + 3H_2S = 2FeS + S + 6H_2O.$$

As ferrous sulphide and the free sulphur are liable to form polysulphides, which cannot be regenerated, the conditions must be adjusted to prevent ferrous sulphide being obtained. Hence the necessity of the presence of an alkali in the material depends on the rapid and complete regeneration of the iron sulphide through admission of oxygen (air) to the gas entering the purifiers.

The process of regeneration cannot go on indefinitely, as the sulphur set free ultimately fills the interstices of the material so that it has to be removed eventually from the purifiers.

(1) G. W. Anderson, Gas World 1914, p. 636 et. sequ.
(2) G. Weyman, J.S.C.I. 1918, p. 333 et. sequ.
(3) Rosujab and Merwin, Am.I. of Science 1919, Vol. 7, p. 311.
(4) Fulweiler and Kunberger, Proc.Am.Gas Inst. 1913, Vol. 8, pt. 1, p. 476 et. sequ.
(5) A. Meade, Modern Gasworks Practice, 1921, p. 572.
(6) G. Weyman, Gas Journal, 1920, Vol. 150, p. 256 et. sequ.

The time for recharging does not arrive, however, until the material contains 50 per cent. of sulphur, when it becomes a suitable raw material for the production of arsenic free sulphuric acid. In many cases the sulphur content of the material is extracted by means of a solvent, *e.g.*, carbon bisulphide, etc., and yields a product of 95 to 99 per cent. purity, according to origin. After treatment with the solvent, the purifying material is again suitable for further use, until the concentration of cyanides has increased to such an extent that their extraction becomes a paying proposition. It must be remembered that crude town's gas contains hydrogen cyanide, which under suitable conditions is practically completely extracted by the iron oxide, with which it forms a complex ferrous ferric cyanide.

Application in the Chemical Industry

Although the bulk of iron oxide used in the chemical industry, in which the gas industry may be counted, is employed in the purification of gas, it finds a wider field in the chemical industry, both as reagent and catalyst. In regard to the latter, "Lux"[7] is pre-eminently suitable on account of its high degree of sub-division. It is used in the hydrogenation of coal and other products, having been introduced by Bergius for the purpose of "fixing the sulphur of the coal." Although it was not considered to be catalytic in action, some recent findings by the Fuel Research Station [7] have shown that its function is catalytic. This view has been confirmed by Graham [8], Hlavica [9] and Varga [10]. A similar part is played by iron oxide in the decomposition of carbon bi-sulphide, according to the formula:—

$$Cs_2 + 2H_2O = 2H_2S + CO_2.$$

This reaction takes place at comparatively low temperature (30 to 80° C.), when over 40 per cent. of the carbon bisulphide present in town's gas is converted in accordance with the above formula. Amongst other uses, the removal of sulphur compounds during the distillation and cracking of oils and the removal of disagreeable odour from certain compounds, such as from carbon bi-sulphide, might be mentioned. If carbon bi-sulphide is digested with 1 per cent. of its own weight of "Lux," the unpleasant smell usually accompanying it disappears completely. This process is only of a chemical nature and apparently not one of adsorption. It is obviously not possible to exhaust the possibilities of employing activated iron hydroxide in an article which is only intended to draw attention to some of the potentialities which exist in this direction, so that one or two examples must suffice, as demonstration. It is hoped, however, that this brief survey will serve the purpose of making it more widely known.

(7) Dept. of Scient. and Ind. Research, The action of Hydrogen upon Coal I. Tech. Paper No. 29.
(8) See References in the above Paper.
(9) Brennstoff Chemie, 1929, p. 201.
(10) Brennstoff Chemie, 1928, p. 277

The German Electrode Industry

Its Importance and Present Trends

ONE of the industrial spheres in which Germany plays an important part is in the manufacture of carbon or coke electrodes. Some indication of the extent of that industry in Germany was given in the economic section of "Brennstoff Chemie," May 15, 1932. From small beginnings in the eighties of last century it appears that a large consumption field for electrodes has developed. The world war occasioned the economically-isolated Germany to develop its nitrogen and aluminium industries and to increase greatly its production of calcium carbide, artificial abrasives, ferro-alloys and electro-steels, among other products.

Besides the nitrogen works at Chorzow in Upper Silesia, now in the possession of Poland, large works were erected at Pusteritz, Trostberg, Spremberg, and Waldshut, for the manufacture of calcium carbide and cyanamide. The present yearly capacity amounts to about 600,000 tons of calcium carbide, and is 7 to 8 times the pre-war capacity; the cyanamide capacity, on the other hand, is now about 500,000 tons yearly or about 10 times the pre-war capacity. From the comparatively small production of about 1,000 tons yearly of aluminium at Rheinfelden before the war, the present-day German aluminium industry is the second largest in the world with a yearly productive capacity of 33,000 tons. In these branches of industry the carbon electrodes are used extensively, both in the production of the necessary electric energy and for processing. Including the subsidiary branches abroad, Germany now owns about half the electrode manufacturing industry of the world. Besides the large consumption of German-made electrodes in Germany itself, there is also a large export trade to European electrode-using lands, such as Norway, Italy, France, Switzerland, England, Sweden, Jugoslavia, Austria and Spain. The raw material basis for this industry in Germany is becoming a domestic one, through the development of pitch coke in the Ruhr coal mining district, and Germany has gradually become more and more independent of raw material for the manufacture of electrodes. Before the general economic crisis had become severe, the European imports of petroleum coke were about 120,000 tons annually. Meanwhile, the Lotheringen A.G., in Bochum, as representative of the Sales Union for Tar Products in Essen, has developed pitch coke production up to 30,000 tons annually, compared with a production of 4,000 tons in 1929. The Tar Products Union in Silesia is also contemplating the production of pitch coke on a large scale, and it has large sale possibilities when the demand is again normal.

Some idea of the importance and the quantities used of carbon electrodes may be gathered when it is stated that to produce one ton of aluminium, about 600 kg. of electrodes are consumed. According to information supplied by the Siemens Planiawerke A.G., about 30 kg. of electrodes is consumed for every ton of calcium carbide produced. The yearly production of electrodes, including those made of graphite, amounts to from 110,000 to 120,000 tons, of which about 65,000 tons are made in Germany. The Siemens Planiawerke A.G., with works at Lichtenberg, Ratibor, and Meitingen alone produce 50,000 tons of electrodes yearly. The same company controls the Soc. Italiana dei Forni Elettrici e dell'Elettrocarbonium which has a yearly capacity of 12,000 tons of electrodes. Besides this concern there exists in Germany the electrode works of the Vereingigte Aluminiumwerke A.G.—the Erftwerke at Grevenbroich—and in Nürnberg are the firms of Dr. Albert Lessing and Conradi, the first-named being the oldest German firm in the electrode manufacturing industry. About 40 per cent. of the German electrode production is utilised in Germany, the balance being exported. There were imported in blocks, plates, and rods for electro-technique purposes in the last three years 36, 33 and 18 tons, while the exports of similar materials amounted to 1,280, 1,470 and 1,920 tons respectively. The imports of carbon pencil electrodes, including graphitised electrodes, in the same period were 160, 100 and 9 tons respectively, while the exports of the same only slightly declined. Imports of electrodes, however, declined from 530 tons in 1929 to 420 tons in 1930, and last year were 310 tons. The exports to Norway in 1930 were 7,730 tons and in 1931 4,190 tons; the exports to Switzerland in 1930 were 4,190 tons and in 1931 only 2,300 tons. The total German exports of electrodes in 1930 amounted to 24,050 tons, against 19,690 tons in 1931.

The recently developed German pitch coke is becoming increasingly popular both with inland and foreign manufacturers of electrodes, because its qualities are always the same, whereas the foreign graphite, anthracite, and petroleum coke varies considerable in quality, according to its origin, sorting, handling, etc. This uniformity of quality is said to be of particular importance in connection with the length and large cross section of the electrodes required for the larger types of electric furnace now employed.

Operation of British Alkali Works in 1931

Points from the Annual Report of the Chief Inspector

ACCORDING to the 68th annual report of the Chief Inspector of Alkali, etc., Works, the number of works registered in 1931 was 984, which involved the inspection of 1,793 separate processes. There was thus a reduction since last year of 58 in the number of works and of 118 in the number of separate processes. A study of the figures available reveals that the decrease is largely due to the cessation of sulphate of ammonia and tar processes. Every registered works has been visited at least once, and in addition a great many visits have been paid to works not on the register for the purpose of investigating complaints and making other inquiries. Several of these complaints have had reference to the escape of "green gas" from coke ovens, but in many modern installations a large proportion of this "green gas" is recovered through the application of induced draught in the ascension pipes by means of steam jets which are turned on during the time of charging. Further inquiries have been made regarding the emission of nauseous fumes from enamelling works, in one case the offending process being the enamelling of copper wire. Here different enamels were used, but the fumes continued to be objectionable. An attempt was then made to destroy the fumes by combustion, but this proved unsuccessful. A bad case of atmospheric pollution by hydrochloric acid fumes occurred during the initial working of a new saltcake plant.

Smelting Works

The replacement of mechanical calciners by sintering machines for the roasting of zinc blende has been very successful. The acid fumes are collected and used in the manufacture of sulphuric acid by the contact process. During the year the selling price of spelter fell to the phenomenally low figure of under £10 per ton, and for a time production was stopped. Some difficulty has been experienced in securing a uniform sulphur dioxide content in the gases from the sintering plant, and this, together with the fact that trials with new catalysts were taking place, resulted temporarily in a slightly higher acidity of the escaping gases. In the latter half of the year, however, when some of the initial difficulties had been overcome, very much better results have been obtained.

At a galena smelting works, to which reference was made in last year's report, several absorption methods have been tried in an endeavour to render harmless the gases derived from the smelting operation. Since, at this works, there is no means for disposal of a liquid effluent, the problem has been a most difficult one, but the company has now devised and put into operation a plant which, it is hoped, will result in the reduction of the escape to a satisfactory figure. In the early part of the year the acidity of the chimney gases was of the order of 17 to 18 grains as sulphuric anhydride per cu.ft. This has now been reduced to an average of 3 to 4 grains, so that one may expect, with some confidence, that the trouble will soon be completely abated.

Sulphuric Acid Works

At sulphuric acid works there has been a further addition to the number of ammonia oxidation plants in use. The new plants give great satisfaction though there has been little opportunity of testing them at full output. Interest displayed at various works indicates that their usefulness is realised and that, with improving times, they are likely to be universally employed. Ammonia is, in some instances, being deliberately wasted. Oxidation to provide the necessary oxides of nitrogen for the chamber process is a means whereby some of it can be profitably utilised.

Escapes of acid gas in excess of the statutory limit have occurred in a few cases. They have, generally, been of short duration and due to temporary derangement of plant conditions or mechanical breakdowns. In one instance an exceptionally high escape was due to starting of the plant without adequate chemical supervision. Steps were taken to ensure proper future control and for the employment of a chemist for regular routine tests. Another high average is recorded against a works in the north, where a new manager had just been appointed and unusual difficulties were encountered in starting up of the plant. There was at the same time a series of severe gales which interfered with the draught. The plant was closed down in the summer and thoroughly overhauled and modernised, and is now working quite satisfactorily.

For the concentration of acid at one works in the north a Calder-Fox scrubber has replaced a coke scrubber with entirely satisfactory results. The outlet is direct to atmosphere and the escaping gases are very low in acidity. Formerly these draughted to a chimney and the requirements of the Act were met only by dilution with fuel gases. There was, moreover, beginning to be serious action on the chimney lining.

In the manufacture of oleum the tendency to replace platinum catalyst by vanadium continues. The latter is worked at a higher temperature than platinum and is less easily poisoned. On the other hand, it is said to be more sensitive to changes in temperature, changes in gas concentration, temporary stoppages, etc. The average of tests taken on the escapes from oleum plants was 4.01 grains as sulphuric anhydride per cubic foot. In a number of works the escapes are treated by scrubbing with a sodium carbonate solution with production of bisulphite. A new plant for this purpose is fashioned entirely of lead and is worked continuously, the average escape being 0.74 grain. Some form of scrubbing should be introduced at every oleum works, but the outlet for bisulphite is limited.

Chemical Manure Works

Operations at chemical manure works during the year have been well conducted and condensation figures have been satisfactory. The average acidity of escapes, expressed in terms of sulphur trioxide, was 0.08 grain per cu. ft., this representing a percentage condensation varying from 85.1 to 99.8. In considering the performance of scrubbing plant at these works, due regard must be had to the fluorine content of the raw phosphate rock used, which varies from 0.5 to 4.5 per cent. Generally speaking a strong den gas will yield a higher percentage condensation than a weak one, although the final escape may be considerably higher. A series of estimations which have been carried out at three works show that the strength of the den gases varies, not only with the fluorine content of the rock, but also according to the stage of the mixing operation. Thus, in series of tests taken during the mixing of Constantine and Kosseir rocks the acidities of the den gases rose in a more or less regular manner from 2 to 30 grains expressed as sulphur trioxide per cu.ft. The acidities of the exit gases increased at the same time from 0.1 to 0.39 grain, but even at the latter comparatively high figure the condensation was 98.6 per cent. In another series of tests taken during the dissolving of a rock of low fluorine content the acidities of the den gases rose in a similar manner, but less regularly and commencing at 0.4 grain reached a maximum of but 3.0 grains.

Sulphate of Ammonia

During the past ten years there has been a steady decline in the price obtainable for ammonia and its products and the number of works registered has declined in sympathy from 723 in 1920 to 469 in 1931. Nevertheless the amount of by-product ammonia per ton of coal carbonised remained nearly stationary up to 1930, showing that the tendency had been towards centralisation of production. During the last year, however, prices fell to such an extent that economic recovery of by-product sulphate of ammonia became almost impossible with the inevitable result that a policy of wastage of raw ammoniacal liquor set in.

No method for the destruction of raw liquor hitherto evolved can be described as satisfactory. Not only are such methods wasteful, but they nearly all lead to increased atmospheric pollution. A number of works have discontinued the use of lime in the stills, leaving the "fixed" ammonia in the effluent, thus effectively reducing the quantity of sulphate made and eliminating from the liquor some of the more vola-

tile noxious constituents. In some cases arrangements are made with the local sanitary authority for the disposal of spent or even raw liquor through the sewers provided that discharge takes place at agreed rates of flow so as to bear a regular relationship to the whole body of general drainage. Disposal is also sometimes effected by running to old pit workings or to soakaways in the fields. This rather haphazard method may eventually result in the pollution of underground water or of streams. The whole subject of effluent disposal and ammonia recovery is receiving the attention of a sub-committee of the Institution of Gas Engineers, the first report of which, issued in November last, will well repay study.

There has been an increase of three in the number of chlorine works registered. A bad escape of chlorine was noted at a calico bleach works which was due to incorrect temperature condition of the absorbing bath. There is always some danger of escape by reason of the corrosion of chlorine feed pipes. Trials with alternative materials are in progress. The deposition of arsenious oxide from gases arising in the smelting of tin ores has been satisfactorily accomplished, the average of escapes being 0.03 grain of arsenious oxide per cu.ft.

Tar and Benzene Works

Complaints were directed on several occasions during the year against a tar works in Yorkshire allegeing the emission of nauseous fumes. Except for one occasion when some pyrodine sulphate solution had been accidentally pumped on to a waste lime tip, no justification for the complaints could be discovered. Doubtless decomposition of pyridine sulphate by lime would give rise to a strong smell, but this piece of carelessness is not likely to be repeated.

A serious accident occurred in June at the works of the Staffordshire Chemical Co., Ltd., Chatterley, where a charge of spirit of low temperature carbonisation origin was being washed for the third and last time with acid, when it primed and caught fire from an undiscovered source. The burning spirit ran down the yard and enveloped the offices and laboratory and three lives were lost. Although, as stated, the actual source of ignition could not be established, it is not difficult to imagine ways in which, under the circumstances, this could have occurred. It is thought possible that the frothing over was caused by a temporary cessation of agitation.

The treatment of acid tar, produced by the washing of crude benzol and tar oil with strong acid, merits special mention. Not only is this material difficult of disposal in its raw state, but, by suitable treatment, an appreciable quantity of acid and spirit may be recovered from it. Several plants for the purpose are in use and recovery is effected of about 40 per cent. of the acid used for washing and 2.2 per cent. of the spirit washed. It is clear, therefore, that, from a financial point of view alone, the process is worthy of serious consideration, especially at the present time.

At an artificial silk works using the viscose process there has been some improvement in dealing with the liquid effluents, especially as regards sulphide liquors, but the characteristic stale smell of the gaseous effluent remains a difficulty in most cases. Methods whereby the gaseous effluent can be treated so as to render it harmless and inoffensive ought to be carefully studied, for the volume of discharge is generally very great and even a low concentration of noxious constituents is likely to cause complaint. A high chimney certainly dissipates the gases, but even where this is provided there is usually an unpleasant odour noticeable in the vicinity which may be due to low level escapes.

The Use of Chemicals in Modern Warfare

Final Report of the Geneva Committee

IN THE CHEMICAL AGE of June 4 we gave a brief summary of the findings of the special committee appointed by the General Commission of the Disarmament Conference at Geneva to consider the question of chemical and bacteriological weapons in relation to the principle of qualitative disarmament. The special committee has just issued its final report, which reveals two points worthy of emphasis; first, that this was the only committee of the Disarmament Conference to reach unanimous agreement, and secondly that this is the first time a really comprehensive and clear definition of chemical warfare has been achieved. The special committee comprised representatives of 14 States, the United Kingdom being represented by Captain C. M. Blackman, Brigadier-General A. C. Temperley, Colonel A. G. C. Dawnay, Captain T. L. Leigh Mallory and Mr. J. Davidson Pratt, general manager and secretary of the Association of British Chemical Manufacturers.

The special committee was appointed on May 10, and held seven meetings between May 18 and 31, the outcome being the approval of a series of resolutions set out in the report. The committee gave consideration to the question of the special character of substances embraced by what may be described as the general idea of chemical warfare. These substances only become means of warfare through the use which is made of them in war. This marks a distinction between chemical means of warfare and ordinary weapons. The same remark applies to a certain extent at least to the appliances and devices that may be used equally well for chemical warfare and for peaceful purposes. Other appliances and devices may be used both for chemical warfare and for other war processes. A small number of appliances and devices are employed specifically for carrying on chemical warfare.

In order to carry out its instructions, the committee had to consider whether chemical weapons and methods of warfare came under the three criteria laid down by the General Commission, namely, (1) the most specifically offensive in character; (2) the most efficacious against national defence; or (3) the most threatening to civilians. The committee agreed unanimously that chemical weapons and methods of warfare undoubtedly answered to the third of these criteria. The committee was unwilling to undertake an enumeration of the various categories of substances according to their chemical composition. It was essential to draw up a definition which should apply to all substances, both those at present known and those which might be discovered subsequently. The committee therefore adopted as its criterion the physiological effects of the substances on living creatures. All substances having a harmful effect were included in the definition.

General Formula Adopted

The committee was of opinion that the prohibition should extend, not merely to substances harmful to human beings, but should include those harmful to animals, being of the opinion that the use of such chemical substances in general should be prohibited. No special reference was made to vegetables, because it was felt that in practice it would not be possible to employ, for the purpose of damaging vegetables, substances which were not also harmful to human beings or animals, or which were not likely to make the vegetables harmful to them. It was considered that chemical substances in whatever way employed should be included in qualitative disarmament, and a general formula intended to cover all possible methods of use was therefore adopted. Qualitative disarmament only applies to the use of chemical substances if such use is designed to injure an enemy. They are not necessarily used during a military action properly so called; for example, the poisoning of wells or springs from which an enemy might possibly draw water would be prohibited. On the other hand, the use of chemical substances for the maintenance of armies—for example, the use of disinfectants and medicaments and the means of destroying harmful animals and parasites—is not in question.

The committee considered it necessary to state clearly what ought to be excluded from its definition. It had in mind, in the first place, explosives. The combustion of explosives may cause a discharge of noxious substances (such as carbon monoxide) which may, according to the circumstances, have more or less serious destructive effects. That is a consequence that cannot be prevented by any means short of prohibiting explosives. At the same time, any practice

designed to increase the discharge of noxious substances must be condemned. Such a practice might consist either of introducing certain products into the explosives or in altering the constitution of the explosives, or in adopting a special method of manufacturing the projectiles. In the second place, the committee had in mind smoke and clouds. Smoke can be used for various purposes; as a screen, or for signalling, etc. It is to be clearly understood that the smoke and clouds which are used must not be capable, in normal conditions of use, of producing harmful effects upon the organism.

The committee desired to include among the objects of qualitative disarmament a class of weapons to which the Soviet and Italian delegations had drawn the attention of the Conference—namely, "all appliances, devices or projectiles specially constructed for the utilisation of the said noxious bodies, with a view to injuring an adversary"; it thus condemned material which can only be used for chemical warfare.

Bacteriological Weapons

The committee felt that, on the question of bacteriological warfare, it need not confine itself strictly to the consideration of the three criteria mentioned above. Bacteriological warfare unquestionably constitutes one of the methods of war most threatening to civilians, since epidemics, as they spread, attack all human beings indiscriminately, and there is no sure method of arresting their effects. Moreover, bacteriological warfare ought to be included in qualitative disarmament quite irrespective of whether it answers to any of the criteria laid down. It is so particularly odious that it revolts the conscience of humanity more than any other method of warfare.

In the resolution on bacteriological warfare reference is made to all methods of disseminating pathogenic microbes, filter-passing viruses or infected substances, wherever such dissemination takes place. It is immaterial whether the microbes in question are momentarily innocuous if they are capable of again becoming virulent. It is stated in the resolution that methods of bacteriological warfare may not be employed either against human beings, or against animals, or against plants.

Incendiary Projectiles and Flame Projectors

There are certain important differences between incendiary weapons and ordinary weapons. The former, like chemical weapons, do not act by shock or trauma. They possess a specific means of action which assimilates them to chemical rather than to ordinary weapons. For that reason, the committee felt that it ought to deal with incendiary weapons, particularly since their prohibition had already been proposed to the Conference by the French, Danish and Swiss delegations. It was felt that bombs, shells, grenades, bullets, arrows, pastilles and other incendiary projectiles were particularly threatening to civilians. In the first place, they are very effective in destroying urban centres and buildings in general. Secondly, whereas ordinary shells only cause damage at the point where they fall, the fires caused by incendiary projectiles are likely to spread considerably. Incendiary projectiles may be used to increase the horror of the effects produced by explosive projectiles. This threatening character is more pronounced as the range of the materials employed increases. This is particularly the case when inhabited places are bombarded by aircraft, since in such bombardment incendiary bombs are usually employed for the above-mentioned purposes. Most of the delegations held that incendiary weapons are, moreover, particularly offensive.

One exception has been specially provided for by the committee. This relates to appliances specially designed for anti-aircraft defence. Incendiary projectiles are particularly effective in anti-aircraft defence, and to forbid the use of such projectiles against aircraft would be to give them a considerable advantage. It is understood that the projectiles in question must be used exclusively for that purpose. The exception would, of course, lose its point and might be allowed to lapse if the conference took steps to prevent the use of aircraft for military purposes. In dealing with incendiary weapons, the committee was faced with the question of appliances such as flame-projectors designed to attack not objects but persons. The committee unanimously recognised that such appliances should be included in qualitative disarmament. Similarly, the committee was unanimous in giving as the reason for this decision the cruelty inherent in the use of these appliances, which cause suffering that cannot be regarded as necessary from a military standpoint. Moreover, the majority of the members of the committee were of opinion that these appliances answer to the first of the three criteria mentioned in that they possess a specifically offensive character.

The Resolutions

The committee has submitted the following resolutions to the General Commission:

Chemical Weapons and Means of Warfare.—The committee considers that chemical substances, whether elements or natural or synthetic compounds, as well as appliances or devices for releasing them, can be described as weapons or means of warfare only in virtue of the use that is made for them, for they may be employed or made with a view to entirely different and essentially peaceful uses; that, when used for the purpose of injuring an adversary, they answer to one or other of the criteria laid down in the General Commission's resolution, and, in any case, more particularly to the third of those criteria. It declares that there should be included in qualitative disarmament the use, for the purpose of injuring an adversary, of all natural or synthetic noxious substances, whatever their state, whether solid, liquid or gaseous, whether toxic, asphyxiating, lachrymatory, irritant, vesicant, or capable in any way of producing harmful effects on the human or animal organism, whatever the method of their use. It also declares that appliances, devices or projectiles specially constructed for the utilisation of the said noxious bodies with a view to injuring an adversary should be included in qualitative disarmament. It observes that unless the use of explosives as such is included in qualitative disarmament, the above definition cannot be extended to the noxious substances arising from the combustion or detonation of explosives, provided that the latter have not been designed or used with the object of producing noxious substances. It further observes that the above definition should not apply to smoke or fog used to screen objectives or for other military purposes, provided that such smoke or fog is not liable to produce harmful effects under normal conditions of use.

Condemned by the Conscience of Humanity

Bacteriological Weapons and Means of Warfare.—The committee considers that the use of pathogenic microbes for the purpose of injuring an adversary is condemned by the conscience of humanity, quite apart from the fact that it answers to the criteria laid down by the General Commission, and more particularly to the third of those criteria. It declares that all methods for the projection, discharge or dissemination in any manner, in places inhabited or not, of pathogenic microbes in whatever phase they may be (virulent or capable of becoming so), or of filter-passing viruses, or of infected substances, whether for the purpose of bringing them into immediate contact with human beings, animals or plants, or for the purpose of affecting any of the latter in any indirect manner—for example, by polluting the atmosphere, water, foodstuffs, or any other objects—should be included in qualitative disarmament.

Incendiary projectiles.—The committee considers that the use of incendiary projectiles involves a particularly grave menace to civilians. It declares that projectiles specifically intended to cause fires should be included in qualitative disarmament. It observes that this definition does not apply either to projectiles specially constructed to give light or to be luminous and, generally, to pyrotechnics not intended to cause fires, or to projectiles of all kinds capable of producing incendiary effects accidently. It considers that qualitative disarmament should not extend to projectiles designed specifically for defence against aircraft, provided that they are used exclusively for that purpose.

Flame-projectors.—The committee considers that the use of flame-projectors is calculated to cause needless suffering, quite apart from the question whether it answers to any of the criteria laid down by the General Commission's resolution. It declares that appliances designed to attack persons by fire, such as flame-projectors, should be included in qualitative disarmament.

Distillers Company Dividend

A Reduction of 2½ per cent

THE final dividend of the Distillers Company for the year ended May 15 is 10 per cent., compared with the previous years's final 12½ per cent. As the interim distribution was unchanged at 7½ per cent., the dividend for the whole year is 17½ per cent. This is the first departure from a 20 per cent. dividend basis since the capital was enlarged, in 1925, when the company secured control of Buchanan-Dewar. At the general meeting last July the chairman observed that in maintaining the dividend he would not have shareholders believe that the company had been unaffected by the depression. Since then there has been little lifting of the depression, while the difficulties of oversea business have increased. No surprise will, therefore, be caused by the decision to lower the dividend and by the indications that profits for the past year were on a somewhat smaller scale. The allocation to reserve is again £250,000, but no announcement is made of a transfer to dividend equalisation reserve, to which £250,000 was appropriated a year ago. The "carry-forward" is increased from £283,152 to £291,482.

The East End Hostels Association

The Annual Banquet

A LARGE and distinguished company attended the annual banquet of the East End Hostels Association at the Stationers' Hall on June 23, under the presidency of the Marquess of Crewe. Among those present were Sir Basil and Lady Blackett, Sir Ernest and Lady Benn, the Right. Hon. Wedgwood Benn, the Earl of Feversham and Dr. Herbert Levenstein.

The MARQUESS OF CREWE, proposing the toast of the Royal Family, read a message from the Prince of Wales in reply to birthday greetings addressed to him by the Association, as follows: "My sincere thanks to members of the East End Hostels Association for their birthday greetings, which I much appreciate. I send my best wishes for the further success of your work." The Prince, added the chairman, had paid several visits to the Hostel.

Mr. FRANK FLETCHER, headmaster of Charterhouse, proposing the toast of "The London Boy," said no one who had worked in a public school could fail to feel a touch of regret that there was excluded from that privilege of education such a large selection of the population of English boys. During the most critical years of growth from boyhood to manhood they were removed from the influence of school and flung out upon the world. It was a real tragedy that their school days should have to cease at the age of 14, and it was to those boys they all owed something and had to ask themselves what they could do to repay them. It was people like Sir Ernest Benn who provided the answer. It was most fitting to associate the name of Sir Ernest Benn with the toast, for he was a London boy, and working for London boys Sir Ernest had dreamed a dream, and it was for the company to see that the dream became a reality.

The Happy London Boy

Sir ERNEST BENN, responding to the toast, drew upon a lifelong acquaintanceship with the London boy in a sympathetic speech which testified to his enthusiasm for the cause inaugurated by his father, Sir John Williams Benn, in establishing the John Benn Hostel. The London boy, said Sir Ernest, escaped the standardisation and stereotyped regimentation of the one-trade city, and was a happy, handy jack of all trades. He was not the robot of factory type, and for that reason was all the better. His education was largely the education of the street and contact with a mass of seven million people, and a fine education it was.

The CHAIRMAN, proposing the toast of "The John Benn Hostel," said the Hostel did not pretend to be an educational institution, although it encouraged the boys to attend evening classes and provided facilities for manual work. The Hostel was not run on charitable lines, and the boys gave just the same contribution as they would to their parents at home, but it was impossible for them out of their small earnings to pay the whole cost of the Institution. There must be thousands of boys to whom the existence of such a hostel must have meant the whole difference between their salvation and the worst side of life.

The Right Hon. WEDGWOOD BENN, who replied, said that out of the 77 boys there was hardly even one out of work. It was not a charity but an independent, co-operative thing, standing on its own legs, and driving its roots in.

Sir BASIL BLACKETT proposed the toast of "The Milner Hall," an important part of the Hostel.

The MAYOR OF STEPNEY replied and said the Hall gave the Stepney children the amenities which more fortunate children were able to have in their homes.

The EARL OF FAVERSHAM proposed the toast of "The Livery Companies," and Mr. MAURICE L. JACKS proposed the health of the chairman.

The National Physical Laboratory

Annual Inspection at Teddington

MORE than 2,000 visitors, including a large number of representatives of the chemical industry, attended the annual inspection of the National Physical Laboratory at Teddington on June 28. They were received in the high voltage laboratory by Sir F. Gowland Hopkins, president of the Royal Society and chairman of the Board, Sir Richard Glazebrook, chairman of the executive committee, and Sir Joseph Petavel, director of the laboratory, and they spent several hours making a complete inspection of the work being carried out in the various departments.

Special interest was taken in the engineering, metallurgy, metrology and physics departments, where a number of exhibits not shown at previous inspections were displayed. A new feature of particular note was a 1-kilogramme vacuum balance for weighing to the highest precision in air or in vacuum. It is anticipated that the new balance will give an accuracy substantially greater than that attainable by the present balances, viz., one part in a hundred million. In order to restrict the effect of changes of temperature on the weighings, arrangements are provided for interchanging the weights on the pans without opening the balance case, and the balance will be operated from outside the room in which it is installed. Precautions have been taken to exclude all magnetic material from the balance and the balance room in order that the weighings should not be falsified by any magnetic forces. The balance will shortly be used for the decennial comparisons of the Imperial Standard Pound and its official copies. These comparisons will be made in air at ordinary atmospheric pressures.

Colour Standardisation

Another new exhibit was the colorimetric equipment in the physics department which, since its development at Teddington, has been widely accepted throughout the world as the standard equipment for colorimetric work. Charts were exhibited illustrating the system of standardised colour measurement, based upon that evolved by the laboratory, which was recommended for international use at the 1931 Congress of the International Commission of Illumination. This is the first time that any measure of international agreement on colour measurement has been achieved, and the work carried out at the laboratory in the last ten years has been an important factor in rendering this possible at the present time. The value of this work to manufacturers and users of coloured materials can best be estimated by imagining the obstacles which would be placed in the way of scientific, technical and commercial developments in, say, engineering, if no established standard weights and measures were in existence. An equivalent obstacle has now been removed from the path of progress in the colour industries.

Other new items include hardness tests on thin metal coatings, such as chromium plate, life tests on lanoline rust preventers, a bomb calorimeter of the adiabatic type for determining the heat of formation of nitrous oxide, and improved methods for the testing of volumetric glassware and the etching of glassware. The gardens of Bushy House were open to the visitors, and at the close of the inspection tea was served in the main aerodynamics building.

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Letters to the Editor

The Editor welcomes expression of opinion and fact from responsible persons for publication in these columns. Signed letters are, of course, preferred, but where a desire for anonymity is indicated this will invariably be respected. From time to time letters containing useful ideas and suggestions have been received, signed with a nom-de-plume and giving no information as to their origin. Correspondence cannot be published in THE CHEMICAL AGE unless its authorship is revealed to the Editor.

Income Tax Adjustments

SIR,—Attention should be drawn to one or two points in the Finance Act, 1932, as they are a little out of the ordinary and their effect may quite easily be overlooked in an income tax adjustment. An important point is the extension of the period for carrying forward losses in certain cases. In this connection the Act lays down that where a loss or a part of a loss cannot be set off against profits during the six years following the loss, there having been an allowance for wear and tear, plant or machinery which reduced the profits to such a point that the loss was greater than the balance, then the part of the loss not so allowed may be carried forward from the year in which it was sustained to all following years of assessment. Prior to the Finance Act, 1932, a six year limit applied to the carry forward.

It will bring encouragement to users of plant and machinery to find that an additional reduction will be allowable to the extent of one-tenth of the amount usually allowed for wear and tear. On the other hand, it is now made clear that a pensioner in receipt of a pension paid voluntarily or capable of being discontinued is to be treated as the possessor of a taxable income under Schedule " E."—Yours faithfully,

W. R. FAIRBROTHER.

Bush House,
Aldwych, W.C.2.

Professional Unity in the Chemical Industry

SIR,—The letter of Professor Armstrong in your last issue is a testimony to his unfailing public spirit and to his undoubted desire to see the science of chemistry play a suitable part in the national economy. He has tossed a good number of multi-coloured balls into the air and no doubt various people will pick out the particular ball that they invidually fancy. Could we persuade Professor Armstrong to give us a definition of an " acedemic chemist?" Is a man born " academic " or does he become so? If " academicity " is a reproach, what can we do to prevent it? Is it a case of malnutrition or defective metabolism? There is something worth looking into here, I am sure, but it would be fitting to get a lead on this disputable point from one who has such splendid opportunities for personal observation but whose blood system has apparently developed a satisfactory immunity.

The important question of publication is raised in the letter and here I would like, with all deference, to protest against any policy which would restrict publication. Like all men who have " arrived," and nobody is in any doubt that your learned correspondent has a permanent box-seat in the chemical theatre, Professor Armstrong now sees the necessity for restriction in publication. But the young cocks must fight! Even if the cock fighting pits are out of date we must have a forum. Think of the enormous amount of paper which Professor Armstrong has used in his lifetime and how much more we hope he is going to use in future! He would never have attained to his present facility, nor would science have been so rich as it is if a policy of restriction had been enforced in his particular case. No, there must be no hint at restriction of publication. Every teacher worthy of the name knows that the preparation of work in a form suitable for publication is a form of discipline so severe and so beneficial that it differentiates men who have submitted to it from those who have not.

We must think of the men who will be required to replace at some distant date the Armstrongs of to-day. Nothing can replace publication for that. If, instead of making these dangerous suggestions, Professor Armstrong would show us how to get going half a dozen periodicals along the lines of the German Zeitschrifts we could soon bring reason into the councils of the Chemical Society and at the same time get going that enthusiastic band of working scientists who made the Germany of Professor Armstrong's youth a place to be talked about for ever and a day. The Chemical Society has its failings, no doubt, and I personally could fluently discourse upon some of them if it were worth while, but it is neither useful nor advisable at the present time of danger *and opportunity* to do other than try to concentrate upon those matters which will ultimately lead to effective unity and productive organisation. Organisation has its own dangers and we do not want an organisation that develops into a heirarchy. Repression is a product of timidity and fear and if we are going to run the risk of a heirarchy made up of " academic men " (for the scribes nearly always win and the men of action nearly always prefer to act rather than to vote) then may the gods help chemistry. After all, chemistry is only an infant and I have yet to learn that a heirarchy knows how to develop a child. So do not let us mix up publication with professional organisation.

If the channels of publication are to be silted up, and no doubt they will occasionally need to be cleaned out, then I for one prefer that the silting up should come from an over-production than from a restriction.

Furthermore, since chemistry and industry are bound to get more and more closely intertwined as the years go on it is more vital that all undue commercial and industrial influence should be kept out of publication. There must be no cessation of publication for fear of rendering highly capitalised plants out of date. The men with the desirable social qualities and the qualities of leadership so desirable in many walks of life are not necessarily the type of people who would make for satisfactory pure science publication.

If Professor Armstrong can give us a few hints on how to separatate log-rolling from logarithms the science will benefit and youth will flourish. Men matter more than matter for the simple reason that matter is here but men must grow. If the Chemical Society is short of paper let it learn how to beg and accept gifts. I offered it an annual subscription about ten years ago but it was refused, and I could badly afford it. By all means sack the mandarins, substitute the minister for the priest, replace the censor by a real referee, show the referee that his whistle is meant to encourage the players to play the game and not to show his admiring parents that " I can make a big noise now, Mummy "; put it any way you like but do not let us forget that chemistry needs the best elements of the Chemical Society badly to-day and we really must try to get the most judicial and competent brains into the publication side. I will not believe that a suitably handled appeal to chemical industry and chemists will fail to put the London Chemical Society in a good financial position.

But circular letters are dropped into the wastepaper basket and there must be none of the " I cannot dig, to beg I am ashamed " business. Londonitis is another disease that I would like to hear discussed by Professor Armstrong. Why should it be the . . . er- . . . provincials who are to be always inconvenienced by committee meetings? I feel sure that the bracing air of Wuthering Heights would blow some of the petrol fumes out of the heads of the " pale faces " and I have a shrewd suspicion that petrol smoke, dust, anæmia and academicity are closely related.

Accordingly, in any scheme of reorganisation that may ultimately emerge there must be the utmost vigilance to keep pure scientific publication free from consultants, patent merchants and industrialists, because pure science has an uncanny knack of being right, and it is not always convenient to interested parties for pure science to butt in or be acknowledged. All this is no doubt very rude but only plain speaking is going to clear away the mists of sectionalism and that brand of public spirit whose stimulus is publicity.

When one comes to consider the cost of printing (the vital factor for a poor society) one immediately thinks that the size of the unit ought to be considered here as, other things being equal and satisfactory, the greater the unit the smaller the cost of production. When Professor Armstrong talks about America the question arises " Would he agree to weld the whole of the English speaking world into one whole in the matter of chemical publication?"

It seems to me that in this dirction lies a considerable hope. If the British Empire and the United States could amalgamate as regards chemical publication there would be an enormous unit with pronounced economic advantages so that the cost of publication would not be such a bugbear as it is to-day. Through this beginning of cultural union might come about a larger understanding in other spheres, and by the time that the League of Nations palace at Geneva is finished it will be largely out of date and pleased to let a few bedrooms to the English-speaking Chemical Institute for the annual feast of reason and lemon soles.

The chorus of opposition that will greet this by no means novel suggestion will be loud and strident no doubt, but I feel sure that a dose of American and Dominion tolerance would be a good thing for academicity such as is met with so often in the old country, and that a little of our old world punctiliousness and thoroughness would help the nations overseas to develop along lines which have not done so badly for England after all. Soft collars are splendid for the neck but they don't look quite right in the drawing room, just as starch is excellent in a new collar but makes the frayed edges of an old one worse than ever. Apparently the collar of the Chemical Society is rather frayed. Does the slim elegence of the monthly volume of the Chemical Society Journal satisfy Professor Armstrong from the point of view of quantity? Does he think that that is all the good work that is turned out in Great Briain, or does he think that that amount represents all that ought to be turned out?—Yours faithfully,

H. H. GRAY.

Greymiars,
Ainley Top.
Fixby, Huddersfield.

Beilby Memorial Awards

Recognition of Original Work

As a memorial to Sir George Beilby, who died in 1924, a fund was collected in 1926, from the interest on which, at the discretion of the administrators, awards are made from time to time to British investigators in science, in order to mark appreciation of original work of exceptional merit carried out over a number of years, preference being given to the investigation of problems connected with fuel economy, chemical engineering and metallurgy. The administrators of the fund (the presidents, hon. treasurers and secretaries of the Institute of Chemistry, the Society of Chemical Industry the Institute of Metals), have announced the award of 100 guineas each to Mr. W. J. Rees, of the Department of Applied Science in the University of Sheffield, and Dr. W. R. Schoeller, metallurgist, D. C. Griffith and Co., London.

Mr. Rees was educated at George Dixon Technical School, Birmingham, and at the Royal College of Science, London. In 1901 he became assistant to Dr. W. Rosenhain, in the laboratories of Chance Bros. and Co., Ltd., at Birmingham; from 1906 to 1917 he was chief chemist to the company, and since 1917 he has been lecturer in charge of the Department of Refractory Materials in the University of Sheffield. In 1915 he was a member of the Council of the Society of Chemical Industry, and in 1917 chairman of the Birmingham Section of that Society. He is a member of the Council of the Ceramic Society and of the Society of Glass Technology; a member of the British Refractories Research Association; hon. member of the British Cast Iron Research Association, to which he was elected in recognition of services rendered in connection with research on moulding sands; a member of the council of the National Federation of Clay Industries; vice-president of the National Association of Clayworks Managers, and hon. secretary of the Refractories Association of Great Britain.

Dr. Schoeller was born at Antwerp and educated in Belgian State Schools at Antwerp and Tournai. He studied chemistry at the Polytechnic Institutes at Darmstadt and Stuttgart, and at the University of Greifswald, where he obtained the degree of Ph. D. in 1902. In the following year, he came to England and joined the staff of D. C. Griffith and Co., assayers to the Bank of England, and in 1909 was naturalised as a British subject. Between 1906 and 1911 he pursued his studies in metallurgy for a while at Colorado School of Mines, and obtained experience in South America and China. From 1911 to 1912 he was engaged as a research chemist at the British Gelatine Works at Luton, and from 1913 to 1915 was a member of the staff of G. T. Holloway and Co., Ltd., Limehouse. In 1916 he rejoined D. C. Griffith and Co., specialising in rare metals. Since 1913 he has devoted much of his spare time to original research work, especially on tantalum and niobium.

Identification of Chemical Pipes

New British Standard Specification

THE British Standards Institution has recently published a specification for the "Identification of Chemical Pipe Lines," (British Standard Specification No. 457-1932) which deals with the marking of pipe lines carrying inflammable, explosive, toxic and corrosive gases. In the preparation of this specification a careful survey of the existing position in the chemical industry was first undertaken, which showed that, in order to ensure the general adoption of any standard system for the identification of chemical pipe lines, it was essential that it should be inexpensive to operate and simple and easy to memorise and also that the system should be such that in case of emergency it would permit of the quick and easy identification of the fluids or gases conveyed.

The British Standard scheme differentiates between the type or nature of the fluid or gas conveyed by means of a series of enamelled identification plates placed adjacent to the control valve and at such intervals along the pipe as deemed necessary by the user, but no attempt has been made to standardise a range of colouring and marking to indicate the many fluids or gases conveyed in pipes. The identification plates are so designed as to suggest to the workman the nature of the fluid or gas conveyed therein and are so shaped that sufficient room is allowed at the base for the name or chemical symbol of the gas or fluid if so desired. Copies of this specification (No. 457—1932) may be obtained from the Publications Department, British Standards Institution, 28 Victoria Street, London, S.W.1, price 2s. 2d. post free.

Standards for Chemical Analysis

New Samples offered by Bureau of Standards

THE United States Bureau of Standards has added a standard sample of nitralloy G steel (Cr, Mo, Al) and of silica brick to its list of standard samples. The steel has the following composition: Carbon, 0.342; manganese, 0.481; phosphorus, 0.021; sulphur, 0.019; silicon, 0.250; chromium, 1,29; molybdenum, 0.163; aluminium, 1.06; copper, 0.141; and nickel, 0.131. This standard, which is No. 106 in the series, costs $3.00 per sample of 150 grams. The composition of silica brick is as follows: SiO_2, 93.94; Al_2O_3, 1.96; Fe_2O_3, 0.66; TiO_2, 0.16; ZrO_2, 0.02; P_2O_5, 0.02; MnO, 0.005; CaO, 2.29; MgO, 0.21; Na_2O, 0.06; K_2O, 0.29; loss on ignition, 0.38. This standard, which is No. 102 in the series, costs $2.00 per sample of 60 grams. All foreign shipments require prepayment, together with 30 cents added postage for every 300 grams of sample or fraction thereof.

The Bureau of Standards is also preparing a standard analysed sample of nickel-chromium-molybdenum cast iron No. 103 (approximately 0.88 per cent. nickel, 0.16 chromium, and 0.70 molybdenum) and a sample of burned magnesite, No. 104. A complete list of standard samples can be obtained free of charge from the Bureau of Standards, Washington.

A GENERAL survey of the various forms of foreign exchange control known to the Department to be in operation abroad, is the subject of a memorandum which has been issued by the Department of Overseas Trade, from whom copies can be obtained on application quoting reference No. C3921. This memorandum supersedes the one previously issued in December, 1931, and its supplements. Only a general outline has been attempted, together with an indication of the extent to which the control exercised in each country actually affects remittances for imported goods.

News from the Allied Industries

Canning

ACCORDING TO THE ANNUAL REPORT of the Chief Inspector of Factories an encouraging feature of the year has been the rapid development of the vegetable and fruit canning trade, formerly carried on mainly in America and Canada. No fewer than eight new factories were erected near the fruit and vegetable-growing areas in Lincolnshire, Cambridge, Norfolk and Worcestershire, while existing factories in other areas were extended. One large new factory was erected for making the cans.

China Clay

A MEETING OF THE DEBENTURE HOLDERS of Lovering China Clays, Ltd., was held on June 30 to consider a scheme under which debenture interest until July 1, 1935, will be paid only out of profits and the sinking fund for the years 1932-34 inclusive will be suspended. As consideration for this concession debenture holders (other than the company's bankers, who have agreed not to require any consideration) will receive 10s. 2d. for each £100 debentures outstanding, and will be given an option to purchase for 10s. 2d. ten of the company's fully paid shares for each £100 debentures. The option over the shares is being granted by one of the principal shareholders, who is also a director, in order to facilitate the carrying into effect of the scheme, and he will be prepared to sell the shares free of stamp duty to the debenture holders.

Tanning

AS A RESULT OF INVESTIGATIONS by the Army Clothing Department on the cause of failure in many samples of Army ankle boots, it has been decided that certain regulations shall be made concerning the leathers used in these boots in future. A new specification, No. 227, stipulates that where waxed shoe butt leather is used for these boots, it shall contain a fat of such a composition that not less than 80 per cent. of the fat or grease is unsaponifiable matter. The effect of this new specification is to compel leather manufacturers of this type of leather to use practically all paraffin wax in impregnating or filling the leather with grease. This is a matter of serious import to suppliers of stuffing greases, who have been selling distilled grease, stearines, or wool grease mixtures for this purpose. Practically no distilled grease or wool grease is allowable, because the leather usually contains a small amount of saponifiable oil before the stuffing or filling process. The nature of the unsaponifiable matter is not specified, but paraffin wax or mineral oil products offer the most convenient method of complying with the regulations.

Glass

THE COURT OF APPEAL, on June 27, delivered reserved judgment on the appeal from the decision of Mr. Justice Luxmoore, who dismissed the action of the British Hartford-Fairmont Syndicate, Ltd., against Jackson Bros. (Knottingley), Ltd., Headland Glassworks, Knottingley, claiming an injunction to restrain defendants from infringing plaintiffs' patent for improvements in the method of feeding molten glass to bottle-making machines. Mr. Justice Luxmoore had held that the patent was invalid on account of want of novelty and want of subject matter, and on defendants' counterclaim he granted an order for revocation. Giving judgment, Lord Justice Lawrence said the contention for appellants was that their invention was a new method of obtaining a new result, and, besides being useful and novel, it had achieved a great commercial success. It was claimed that the material part of the invention was the piston-like action of a plunger within the outlet for obtaining gobs of molten glass of a particular size and shape. The claim in the specification which described the invention was ill-drawn and puzzling. It was much too wide and, having regard to the state of public knowledge at the time of the patent, it was invalid for want of novelty, and for ambiguity. If the inventor had intended his invention to be what counsel said it was, it would have been easy to express it in plain language. Instead of that he had used roundabout language, which had led to much subtle argument, and which his Lordship thought was kept in reserve if the patent was called in question and to frighten off those who might be inclined to challenge the patent.

Artificial Silk

AT THE COMPANY MEETING of the Algemeine Kunstijde Unie (A.K.U.) held in Amsterdam on June 22, the chairman declared that rationalisation has resulted in a decline of 30 per cent. in costs. The British concerns in which the company was interested, he said, were working at full capacity owing to the fall in sterling. It was anticipated that under normal conditions the share capital of the A.K.U. would earn a reasonable yield. The company is chiefly interested in the British Enka Artificial Silk Co., British Bemberg, Ltd., and British Breda Silk, Ltd.

Glue Industry

BRITISH GLUES AND CHEMICALS made a fair recovery during the year ended April 30 last, the net profit amounting to £31,408, which compares with £15,029 reported for the previous year. The fixed dividend on the preference shares for the half-year ended April 30, 1931, required £21,000, however, while £4,000 is transferred to the taxation reserve, so that no return is possible on the ordinary shares for the second year in succession. The surplus increases the balance in hand from £25,191 to £31,659. Although the results still compare unfavourably with those secured during the first two years of the company's operations, they are encouraging in view of the very difficult trading conditions prevailing during the period covered by the accounts. As the preference dividends are now twelve months in arrears and amount to £42,000, it is obvious that a further substantial recovery must be effected before the ordinary shares can re-enter the dividend list. The balance-sheet shows that the liquid position has been strengthened during the year.

Mineral Oil

A NEW OIL CONFERENCE opened in Paris on June 29, a sequel to the conference held in New York in the closing days of May. It is understood that the decision to meet again was taken after conversations which Mr. Kessler, of the Royal Dutch-Shell group, and Mr. Arnott, of the Socony-Vacuum, had in New York at the end of the first conference. So far as can be gathered, the group of companies participating in the New York conference are being represented, while there are also delegates from Roumania. It is understood that the Roumanian oil industry will be represented by C. Osoceanu, president of the Association des Industriels du Petrole; Otto Stern, of the Astra Romana (Royal Dutch-Shell group); Th. Masterson ("Unirea"); J. Marinesco (Concordia); M. Constantinesco (Creditul Minier), and G. Moriatti (Prahova). This conference will not be devoted to a general survey of the position, as were the New York discussions. It will be a gathering of different groups, and the main topic of discussion will be the Roumanian situation.

Fuller's Earth in the United States

Advance Statistics for 1931

THE fuller's earth industry in the United States in 1931, for the first time in ten years, retrogessed as compared with the preceding year. Earth sold or used by producers in 1931 was 288,400 short tons, valued at $10.59 (about 44s. at par) per ton. This was a decrease of 47,244 tons, or 14 per cent. in quantity compared with 1930. This output, however, was larger than that of any year prior to 1929, and was 173 per cent. larger than that of 1921. The value of fuller's earth sold or used by producers in 1931 was greater than that of any year prior to 1926, and was 55 per cent. greater than that of 1921. The average value per ton in 1931 was the lowest since 1916, it was 18 per cent. lower than that of 1930 and 46 per cent. lower than that of 1920, which was the year of maximum average value ($19.51). Until 1895, when fuller's earth was successfully produced commercially in Florida, the United States was entirely dependent on foreign supplies. In 1931 the imports of fuller's earth were 4,013 short tons, valued at $48,964 (approximately £10,200), a decrease of 45 per cent. in quantity and of 69 per cent. in value as compared with 1930.

Weekly Prices of British Chemical Products

Review of Current Market Conditions

The following notes on the chemical market conditions in Great Britain are based on direct information supplied by the British manufacturers concerned, and unless otherwise qualified the figures quoted apply to fair quantities, net and naked at makers' works. Where no locality is indicated, the prices are general for the United Kingdom. Particulars of the London chemical market are specially supplied to THE CHEMICAL AGE by R. W. Greeff and Co., Ltd., and Chas. Page and Co., Ltd., and those of the Scottish chemical market by Chas. Tennant and Co., Ltd.

THE London chemical market shows little change and prices remain fairly steady. Considering the prevailing conditions, the demand is moderately satisfactory. There is no change in the market for coal tar products, prices remaining firm. The threat of a labour dispute in the Lancashire cotton industry, with its inevitable reaction on the important chemical-using, bleaching, dyeing and finishing trades, continues to exercise a restrictive influence on the Manchester chemical market so far as new forward contracts are concerned, and only very moderate activity in this direction has been reported here during the past week. On the whole, however, spot business as well as delivery specifications against existing contracts are regarded as not unsatisfactory. The tone of the market is generally steady and price variations have been both few in number and of limited extent. The approach of the stocktaking period has had an adverse effect on buying in Scotland and stocks have been kept very low.

General Chemicals

ACETONE.—LONDON: £65 to £68 per ton; SCOTLAND: £66 to £68 ex wharf, according to quantity.

ACID, ACETIC.—Tech. 80%, £37 5s. to £39 5s.; pure 80% £38 5s. to £40 5s.; tech., 40%, £19 15s. to £21 15s.; tech., 60%, £28 10s. to £30 10s. SCOTLAND: Glacial 98/100%, £48 to £50; pure 80%, £38 5s.; tech. 80%, £37 5s. d/d buyers' premises Great Britain. MANCHESTER: 80%, commercial, £39; tech. glacial, £52.

ACID, BORIC.—SCOTLAND: Granulated commercial, £26 10s. per ton; B.P. crystals, £35 10s.; B.P. powder, £36 10s. in 1-cwt. bags d/d free Great Britain in one-ton lots upwards.

ACID, CHROMIC.—11d. per lb., less 2½% d/d U.K.

ACID, CITRIC.—1s. 0½d. per lb. LONDON: 1s. 1½d., less 5%. MANCHESTER: 1s. 0½d. to 1s. 0¾d.

ACID, CRESYLIC.—97/99%, 1s. 6d. to 1s. 8d. per gal.; 99/100%, 1s. 9d. to 2s.

ACID FORMIC.—LONDON: £50 per ton. *£52.

ACID, HYDROCHLORIC.—Spot, 3s. 9d. to 6s. carboy d/d according to purity, strength and locality. SCOTLAND: Arsenical quality, 4s.; dearsenicated, 5s. ex works, full wagon loads.

ACID, LACTIC.—LANCASHIRE: Dark tech., 50% by vol., £24 10s. per ton; 50% by weight, £28 10s.; pale tech., 50% by vol., £28; 50% by weight, £33; 80% by weight, £53; edible, 50% by vol., £41. One-ton lots ex works, barrels free.

ACID, NITRIC.—80° Tw. spot, £20 to £25 per ton makers' works, according to district and quality. SCOTLAND: 80°, £23 ex station full truck loads.

ACID, OXALIC.—LONDON: £45 10s. per ton in casks, £48 10s. to £52 10s. in kegs. SCOTLAND: 98/100%, £49 to £52 ex store. MANCHESTER: £48, ex store.

ACID, SULPHURIC.—Average prices f.o.r. British makers' works, with slight variations owing to local considerations: 140° Tw. crude acid, £3 per ton; 168° Tw. arsenical £5 10s.; 168° Tw. non-arsenical, £6 15s. SCOTLAND: 144° quality, £3 12s. 6d.; 168°, £7; dearsenicated, 20s. per ton extra.

ACID, TARTARIC.—1s. 0½d. per lb. SCOTLAND: B.P. crystals, 1s. 1d. to 1s. 1½d., less 5% carriage paid. MANCHESTER: 1s. 0¼d.

ALUM.—SCOTLAND: Lump potash, £9 per ton ex store.

ALUMINA SULPHATE.—LONDON: £8 5s. to £9 10s. per ton. *£7 10s. SCOTLAND: £8 to £8 10s. ex store.

AMMONIA, ANHYDROUS.—Spot, 10d. per lb. d/d in cylinders. SCOTLAND: 10d. to 1s. containers extra and returnable.

AMMONIA, LIQUID.—SCOTLAND: 80°, 2½d. to 3d. per lb. d/d, according to quantity.

AMMONIUM CARBONATE.—SCOTLAND: Lump, £36 per ton; powdered, £38, in 5-cwt. casks d/d U.K. stations or f.o.b. U.K. ports.

AMMONIUM CHLORIDE.—£37 to £45 per ton, carriage paid. LONDON: Fine white crystals, £19 to £20. (See also Salammoniac.)

AMMONIUM CHLORIDE (MURIATE).—SCOTLAND: British dog tooth crystals, £32 to £35 per ton, carriage paid according to quantity. (See also Salammoniac.)

AMMONIUM BICHROMATE.—8d. per lb. d/d U.K.

ANTIMONY OXIDE.—SCOTLAND: Spot, £24 per ton, c.i.f. U.K. ports.

ANTIMONY SULPHIDE.—Golden 6½d. to 1s. 1½d. per lb.; crimson, 1s. 4d. to 1s. 6d. per lb. according to quality.

ARSENIC.—LONDON: £24 10s. c.i.f. main U.K. ports for imported material; Cornish nominal, £26 10s. f.o.r. mines. SCOTLAND: White powdered £27 ex wharf; spot, £27 10s. ex store. MANCHESTER: White powdered Cornish, £26 10s. at mines.

ARSENIC SULPHIDE.—Yellow 1s. 6d. to 1s. 8d. per lb.

BARIUM CHLORIDE.—£11 to £11 10s. per ton.

BISULPHIDE OF LIME.—£7 10s. per ton f.o.r. London, packages free.

BLEACHING POWDER.—Spot 35/37% £7 19s. per ton d/d station in casks, special terms for contract. SCOTLAND: £8 15s. in 5/6 cwt. casks.

BORAX, COMMERCIAL.—Granulated £15 10s. per ton, powder £17, packed in 1-cwt. bags, carriage paid any station Great Britain. Prices are for 1-ton lots and upwards.

CADMIUM SULPHIDE.—3s. 6d. to 3s. 9d. per lb.

CALCIUM CHLORIDE.—Solid 70/75% spot £5 5s. to £5 15s. per ton d/d station in drums.

CARBON BISULPHIDE.—£30 to £32 per ton, drums extra.

CARBON BLACK.—5d. to 5⅝d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £55 per ton, drums extra.

CHROMIUM OXIDE.—10d. to 10½d. per lb. according to quantity d/d U.K. Green 1s. 2d. per lb.

CHROMETAN.—Crystals 3¾d. per lb. Liquor £19 10s. per ton d/d.

COPPERAS (GREEN).—SCOTLAND: £3 15s. per ton, f.o.r., or ex works.

CREAM OF TARTAR.—LONDON: £5 to £5 3s. 6d. per cwt.

FORMALDEHYDE.—LONDON: £27 to £27 10s. per ton. *£30. SCOTLAND: 40%, £28 10s. ex store.

HYDROGEN PEROXIDE.—LONDON: *100 vols. 10d. per lb.

LAMPBLACK.—£46 to £50 per ton.

LEAD, ACETATE.—LONDON: White, £39 to £41 per ton. Brown £1 per ton less. SCOTLAND: White Crystals £42 to £44 c.i.f. U.K. ports. Brown £1 per ton less. MANCHESTER: White, £35; Brown, £33 10s.

LEAD NITRATE.—£28 per ton. MANCHESTER: £27 10s.

LEAD, RED.—SCOTLAND: £28 10s. per ton d/d buyer's works.

LEAD, WHITE.—SCOTLAND: £40 per ton carriage paid.

LITHOPONE.—30%, £20 to £22 per ton.

MAGNESITE.—SCOTLAND: Ground Calcined £9 per ton ex store.

METHYLATED SPIRIT.—61 O.P. Industrial 1s. 8d. to 2s. 3d. gal. Pyridinised Industrial, 1s. 10d. to 2s. 5d. Mineralised, 2s. 9d. to 3s. 3d. 64 O.P. 1d. extra in all cases. Prices according to quantities. SCOTLAND: Industrial 64 O.P., 1s. 9d. to 2s. 4d.

NICKEL AMMONIUM SULPHATE.—£38 per ton d/d.

NICKEL SULPHATE.—£38 per ton d/d.

POTASH, CAUSTIC.—£30 to £33 per ton. LONDON: £42. MANCHESTER: £40.

POTASSIUM BICHROMATE.—Crystals and Granular, 5d. per lb. net d/d U.K. Discount according to quantity. Ground 5¾d. LONDON: 5d. per lb. with usual discounts for contracts. SCOTLAND: 5d. d/d U.K. or c.i.f. Irish Ports with allowance for contracts. MANCHESTER: 5d.

POTASSIUM CARBONATE.—SCOTLAND: 96/98% spot £28 per ton ex store. LONDON: £31 10s. to £32. MANCHESTER: £31 to £32.

POTASSIUM CHLORATE.—3¾d. per lb. export London in 1-cwt. kegs. LONDON: £37 to £40 per ton. SCOTLAND: 99¾/100% powder, £34. MANCHESTER: £36.

POTASSIUM CHROMATE.—6½d. per lb. d/d U.K.

POTASSIUM NITRATE.—SCOTLAND: Refined Granulated £28 per ton c.i.f U.K. ports. Spot £30 per ton ex store.

POTASSIUM PERMANGANATE.—LONDON: 8½d. to 9d. per lb. SCOTLAND: B.P. crystals, 8½d. MANCHESTER: Commercial, 8d.; B.P., 8¾d.

POTASSIUM PRUSSIATE.—LONDON: 8½d. to 9d. per lb. SCOTLAND: Yellow spot material, 8½d. ex store. MANCHESTER: Yellow, 8½d.

SALAMMONIAC.—First lump spot, £42 17s. 6d. per ton d/d in barrels.

SODA ASH.—58% spot, £6 per ton f.o.r. in bags, special terms for contracts.

SODA, CAUSTIC.—Solid 76/77° spot £14 10s. per ton d/d station. SCOTLAND: Powdered 98/99% £17 10s. in drums, £18 15s. in casks. Solid 76/77% £14 10s. in drums. 70/72% £14 12s. 6d. carriage paid buyer's station, minimum 4-ton lots; contracts 10s. per ton less. MANCHESTER: £12 15s. to £14 contracts.

SODA CRYSTALS.—Spot £5 to £5 5s. per ton d/d station or ex depot in 2-cwt. bags.

SODIUM ACETATE.—£21 to £22 per ton.

SODIUM BICARBONATE.—Refined spot £10 10s. per ton d/d station in bags. SCOTLAND: Refined recrystallised £10 10s. ex quay or station. MANCHESTER: £10 10s.

SODIUM BICHROMATE.—Crystals cake and powder 4d. per lb. net d/d U.K. discount according to quantity. Anhydrous 5d. per lb. LONDON: 4d. per lb. with discounts for quantities. SCOTLAND: 4d. delivered buyer's premises with concession for contracts. MANCHESTER: 4d. less 1 to 3½% contracts, 4d. spot lots.

SODIUM BISULPHITE POWDER.—60/62%, £16 10s. per ton d/d 1-cwt. iron drums for home trade.

SODIUM CARBONATE (SODA CRYSTALS).—SCOTLAND: £5 to £5 5s. per ton ex quay or station. Powdered or pea quality 7s. 6d. per ton extra. Light Soda Ash £7 ex quay, min. 4-ton lots with reductions for contracts.

* Prices quoted by other manufacturers.

SODIUM CHLORATE.—2¾d. per lb. LONDON: £29 per ton. *£32 10s. MANCHESTER: £29.
SODIUM CHROMATE.—3⅝d. per lb. d/d U.K.
SODIUM HYPOSULPHITE.—SCOTLAND: Large crystals English manufacture £9 5s. per ton ex stations, min. 4-ton lots. Pea crystals £15 ex station 4-ton lots. MANCHESTER: Commercial, £9 5s.; photographic, £15.
SODIUM NITRITE.—Spot £19 to £22 per ton d/d station in drums.
SODIUM PERBORATE.—LONDON: 10d. per lb.
SODIUM PHOSPHATE.—£13 to £15 per ton.
SODIUM PRUSSIATE.—LONDON: 5d. to 5½d. per lb. SCOTLAND: 5d. to 5¾d. ex store. MANCHESTER: 5d. to 6d.
SODIUM SILICATE.—140° Tw. Spot £8 5s. per ton d/d station returnable drums.
SODIUM SULPHATE (GLAUBER SALTS).—£4 2s. 6d. per ton d/d. SCOTLAND: English material £3 15s.
SODIUM SULPHATE (SALT CAKE).—Unground Spot £3 15s. per ton d/d station in bulk. SCOTLAND: Ground quality, £3 5s. per ton d/d. MANCHESTER: £3 2s. 6d.
SODIUM SULPHIDE.—Solid 60/62% Spot £10 15s. per ton d/d in drums. Crystals Spot £7 15s. per ton d/d in casks. SCOTLAND: For home consumption, Solid 60/62%, £10 5s.; broken 60/62%, £11 5s.; crystals, 30/32%, £8 2s. 6d. d/d buyer's works on contract, min. 4-ton lots. Spot solid 5s. per ton extra. Crystals, 2s. 6d. per ton extra. MANCHESTER: Concentrated solid, 60/62%, £11; commercial, £8.
SODIUM SULPHITE.—Pea crystals spot, £13 10s. per ton d/d station in kegs. Commercial spot £9 10s. d/d station in bags.
SULPHATE OF COPPER.—MANCHESTER: £16 per ton f.o.b.
SULPHUR.—£12 5s. per ton. SCOTLAND: Flowers, £12 10s.; roll, £12; rock, £9. Ground American, £12 ex store.
SULPHUR CHLORIDE.—5d. to 7d. per lb., according to quality.
SULPHUR PRECIP.—B.P. £55 to £60 per ton according to quantity. Commercial, £50 to £55.
VERMILION.—Pale or deep, 5s. 2d. to 5s. 5d. per lb.
ZINC CHLORIDE.—SCOTLAND: British material, 98%, £18 10s. per ton f.o.b. U.K. ports.
ZINC SULPHATE.—LONDON and SCOTLAND: £12 per ton.
ZINC SULPHIDE.—1s. to 1s. 2d. per lb.

Pharmaceutical and Fine Chemicals

The following changes in the prices of pharmaceutical and fine chemicals are announced:—

BROMIDES, B.P.—Ammonium, 1s. 10d. per lb.; Potassium, 1s. 7d. per lb.; Sodium, 1s. 9d. per lb.
POTASS. BITARTRATE, 99/100% (cream of tartar).—98s. per cwt.
PERFUMERY CHEMICALS.—Acetophenone, 7d. per lb.; Safrol, 1s. 7d. per lb.
ESSENTIAL OILS.—Clove, 90/92% English, 5s. 6d. per lb.; Citronella, Ceylon, 2s. per lb.; Lemon, 5s. 6d. per lb.; Lemongrass, 2s. 6d. per lb.; Orange, Sweet, 7s. 6d. per lb.

Intermediates and Dyes

IN the following list of Intermediates delivered prices include packages except where otherwise stated:—

ACID, BENZOIC, B.P. (ex Toluol).—1s. 9½d. per lb.
ACID, GAMMA.—Spot, 4s. per lb. 100% d/d buyer's works.
ACID H.—Spot, 2s. 4½d. per lb. 100% d/d buyer's works.
ACID, NEVILLE AND WINTHER.—Spot, 3s. per lb. 100% d/d buyer's works.
ACID, SULPHANILIC.—Spot, 8d. per lb. 100% d/d buyer's works.
ANILINE OIL.—Spot, 8d. per lb., drums extra, d/d buyer's works.
ANILINE SALTS.—Spot, 8d. per lb. d/d buyer's works, casks free.
BENZALDEHYDE.—Spot, 1s. 8d. per lb., packages extra.
BENZIDINE BASE.—Spot, 2s. 5d. per lb. 100% d/d buyer's works.
o-CRESOL 30/31° C.—£2 6s. 5d. per cwt., in 1-ton lots.
m-CRESOL 98/100%.—2s. 9d. per lb., in ton lots.
p-CRESOL.—34.5° C.—1s. 9d. per lb., in ton lots.
DICHLORANILINE.—2s. 2d. per lb.
DIMETHYLANILINE.—Spot, 1s. 6d. per lb., package extra.
DINITROBENZENE.—8½d. per lb.
DINITROTOLUENE.—48/50° C., 8½d. per lb.; 66/68° C., 9d. per lb.
DIPHENYLAMINE.—Spot, 2s. per lb., d/d buyer's works.
a-NAPHTHOL.—Spot, 2s. 4d. per lb., d/d buyer's works.
B-NAPHTHOL.—Spot, £75 per ton in 1-ton lots, d/d buyer's works.
a-NAPHTHYLAMINE.—Spot, 11½d. per lb., d/d buyer's works.
B-NAPHTHYLAMINE.—Spot, 2s. 9d. per lb. d/d buyer's works.
o-NITRANILINE.—5s. 10d. per lb.
m-NITRANILINE.—Spot, 2s. 7d. per lb. d/d buyer's works.
p-NITRANILINE.—Spot, 1s. 8d. per lb. d/d buyer's works.
NITROBENZENE.—Spot, 6½. per lb.; 5-cwt. lots, drums extra.
NITRONAPHTHALENE.—9d. per lb.
SODIUM NAPHTHIONATE.—Spot, 1s. 9d. per lb.
o-TOLUIDINE.—Spot, 9½d. per lb., drums extra, d/d buyer's works.
p-TOLUIDINE.—Spot, 1s. 9d. per lb., d/d buyer's works.
m-XYLIDINE ACETATE.—3s. 6d. per lb., 100%.

Coal Tar Products

ACID, CARBOLIC (CRYSTALS).—5½d. to 6¾d. per lb. Crude, 60's 1s. 5¼d. to 1s. 6¼d. per gal. SCOTLAND: Sixties, 1s. 7d. to 1s. 8d.
ACID, CRESYLIC.—99/100, 1s. 7d. per gal.; B.P., 2s. to 2s. 2d.; Refined, 1s. 9d. to 1s. 11d.; Pale, 98%, 1s. 6d. to 1s. 7d.; Dark, 1s. 4d. to 1s. 4½d. LONDON: 98/100%, 1s. 6d. Dark 95/97%, 1s. 4d. SCOTLAND: Pale 99/100%, 1s. 3d. to 1s. 4d.; 97/99%, 1s. 1d. to 1s. 2d.; dark 97/99%, 1s. 0d. to 1s. 1d.; high boiling acid, 2s. 6d. to 3s.
BENZOL.—At works, crude 7d. to 7½d. per gal. Standard motor, 1s. 2d. to 1s. 3d.; 90%, 1s. 3d. to 1s. 4d. Pure, 1s. 6d. to 1s. 7d. LONDON: Motor, 1s. 5½d. SCOTLAND: Motor, 1s. 3½d. to 1s. 4½d.; 90%, 1s. 9½d. to 1s. 10½d.
CREOSOTE.—Standard for export, 4¼d. to 5d. nett per gal. f.o.b. for Home, 3¾d. d/d. LONDON: 3d. to 3½d. f.o.r. North; 4d. to 4½d. London. MANCHESTER: 3¾d. to 4¾d. SCOTLAND: Specification oils, 3¾d. to 4¼d.; washed oil, 4d. to 4½d.; light, 3¾d. to 4¼d.; heavy, 4½d. to 5d.
NAPHTHA.—Solvent, 90/160, 1s. 5d. per gal.; 95/160, 1s. 4½d.; 90/190, 1s. 1d. to 1s. 2d. LONDON: Solvent, 1s. 1½d. to 1s. 2d.; heavy, 11d. to 1s. 0½d. f.o.r. SCOTLAND: 90/160, 1s. 3d. to 1s. 3½d.; 90/190, 1s. 1d. to 1s. 2d.
NAPHTHALENE.—Purified crystals, £9 10s. per ton in bags. LONDON: Fire lighter quality, £3 to £3 10s.; 74/76 quality, £4 to £4 10s.; 76/78 quality, £5 10s. to £6. SCOTLAND: 40s. to 50s.; whizzed, 65s. to 70s.
PYRIDINE.—90/140, 3s. 9d. per gal.; 90/160, 4s. to 4s. 6d.; 90/180, 2s. to 2s. 6d. SCOTLAND: 90/160%, 4s. to 5s.; 90/220%, 3s. to 4s.
REFINED COAL TAR.—SCOTLAND: 4¾d. to 5d. per gal.
TOLUOL.—90%, 2s. 2d. per gal.; Pure, 2s. 6d.
XYLOL.—1s. 9d. per gal.; Pure, 1s. 11d.

Wood Distillation Products

ACETATE OF LIME.—Brown, £8 per ton. Grey, £12. Liquor, 4d. to 5d. per gal. MANCHESTER: Brown, £8; grey, £11 10s.
ACETIC ACID, TECHNICAL, 40%.—£16 15s. to £18 per ton.
ACETONE.—£63 to £65 per ton.
AMYL ACETATE, TECHNICAL.—95s. to 110s. per cwt.
CHARCOAL.—£7 10s. to £12 per ton.
IRON LIQUOR.—24°/30° Tw., 10d. to 1s. 2d. per gal.
WOOD CREOSOTE.—1s. to 2s. 6d. per gal., unrefined.
WOOD NAPHTHA, MISCIBLE.—3s. to 4s. per gal. Solvent, 3s. 9d. to 4s. 9d. per gal.
WOOD TAR.—£2 to £6 per ton.
BROWN SUGAR OF LEAD.—£32 per ton.

Latest Oil Prices

LONDON, June 29.—LINSEED OIL was inactive. Spot, small quantities, £15 10s.; July, £12 10s.; Sept.-Dec., £12 15s.; Jan.-April, £13 12s. 6d., naked. RAPE OIL was neglected. Crude, extracted, £28; technical, refined, £30, naked, ex wharf. COTTON OIL was steady. Egyptian, crude, £20; refined common edible, £23 15s.; deodorised, £25 15s., naked, ex mill. TURPENTINE was quiet. American, spot and July, 59s. 3d. per cwt.

HULL.—LINSEED OIL.—Spot, £12 10s. per ton; June, £11 17s. 6d.; July-Aug., £12 2s. 6d.; Sept.-Dec., £12 10s.; Jan.-April, £13 5s. per ton. COTTON OIL.—Egyptian, crude, spot, £20; edible refined and technical, spot, £22 5s.; deodorised, £23 10s. per ton, naked. PALM KERNEL OIL.—Crude, f.m.q., spot, £21 per ton, naked. GROUNDNUT OIL.—Crushed-extracted, spot, £31 10s.; deodorised, £35 10s. per ton. RAPE OIL.—Crushed-extracted, spot, £27; refined, £28 10s. per ton. SOYA OIL.—Crushed-extracted, spot, £20; deodorised, £23 per ton. COD OIL, 16s. per cwt. CASTOR OIL.—Pharmacy, spot, 40s. 6d.; first, 35s. 6d.; second, 30s. 6d. per cwt. TURPENTINE.—American, spot, 60s. per cwt.

Nitrogen Fertilisers

SULPHATE OF AMMONIA.—The export market has been weak and the price has receded to £4 2s. 6d. per ton f.o.b. U.K. port in single bags. Only small buying has been reported. The home product is being offered to the farmer at £5 5s. per ton delivered up to June, 1933, in -ton lots to nearest station. It is understood that some purchases have been made for forward delivery at this figure.

NITRATE OF SODA.—The price remains unchanged at £9 per ton for imported nitrate and £8 16s. 0d. per ton for British, delivered in 6-ton lots.

NITRO-CHALK.—The price remains unchanged at £7 5s. 0d. per ton delivered in 66-ton lots.

SINCE the announcement late in 1931 of the first of the I. G. Farbenindustrie's series of sulphonated oil detergents, Igepon A, efforts have been directed towards the production of a product of this class with greater stability to acids and alkalis. The result is a new product, Igepon T, claimed to have such properties as preventing formation of or dissolving lime soaps, having greater and quicker cleansing power than soap whether in alkaline, neutral, or acid baths, levelling of dye on fibre, acting as dispersing and cleansing agent in kier boiling of cotton.

*** Prices quoted by other manufacturers.**

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Inventions in the Chemical Industry

Specifications Accepted and Applications for Patents

THE following information is prepared from the Official Patents Journal. Printed copies of Specifications accepted may be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, at 1s. each. The numbers given under "Applications for Patents" are for reference in all correspondence up to the acceptance of the Complete Specification.

Specifications Accepted with Date of Application

MANUFACTURE OF SINTERED ALLOYS. L. Mellersh-Jackson (*Deutsche Edelstahlwerke A.-G.*). Sept. 2, 1931. 374,710.

ANTI-HALATION LAYERS FOR PHOTOGRAPHIC PLATES AND FILMS. I. G. Farbenindustrie. Oct. 31, 1930. 374,735.

PRODUCTION OF ALUMINIUM-MAGNESIUM ALLOYS HAVING A HIGH RESISTANCE TO CORROSION. I. G. Farbenindustrie. May 23, 1931. 374,766.

PURIFYING GLYCERINE. Siemens-Elektro-Osmose Ges. Dec. 18, 1930. 374,769.

RECOVERY OF SULPHUR FROM GAS-PURIFYING MATERIALS. H. O. G. Bollmann and F. W. Engelmann. Nov. 27, 1931. 374,777.

PROTECTIVE PAPER STRIPS FOR PHOTOGRAPHIC FILM-ROLLS FOR DAYLIGHT LOADING. I. G. Farbenindustrie. Mar. 10, 1931. 374,787.

MERCERISING TEXTILE MATERIALS. I. G. Farbenindustrie. Apr. 1, 1931. 374,791.

MANUFACTURE OF AROMATIC AMINES AND COLOURED PIGMENTS. I. G. Farbenindustrie. Dec. 27, 1930. 374,793.

APPLIANCES FOR CENTRIFUGALLY PURIFYING GASES, VAPOURS, AND STEAM. W. Alexander. Jan. 1, 1932. 374,795.

CARBONISATION OF RAGS. M. Gessner. Jan. 2, 1931. 374,796.

PRODUCTION OF OXIDE COATINGS ON ALUMIUM AND ITS ALLOYS. Vereinigte Aluminium-Werke A.-G. Dec. 18, 1931. 374,806.

MANUFACTURE OF ORGANIC BISMUTH COMPOUNDS. I. G. Farbenindustrie. Mar. 21, 1931. 374,818.

MANUFACTURE OF CELLULOSE COMPOUNDS. Dr. L. Lilienfeld. Mar. 14, 1930. 374,964.

PROCESS AND APPARATUS FOR THE DESTRUCTIVE DISTILLATION OF CARBONACEOUS MATERIALS. A. J. Meier. Dec. 12, 1930. 374,838.

DYEING OF MATERIALS MADE OF OR CONTAINING CELLULOSE ESTERS OR ETHERS. British Celanese, Ltd., and G. H. Ellis. Jan. 5, 1931. 374,884.

COLOURATION OF MATERIALS MADE OF OR CONTAINING CELLULOSE ESTERS OR ETHERS. British Celanese, Ltd., E. W. Kirk, and G. H. Ellis. Jan. 5, 1931. 374,839.

PRODUCTION OF ETHYLENE OXIDE. Anglo-Persian Oil Co., Ltd., F. B. Thole, S. F. Birch, and W. D. Scott. Feb. 10, 1931. 374,864.

MANUFACTURE OF TRIARYLEMETHANE DYESTUFFS. I. G. Farbenindustrie. Feb. 14, 1930. 374,865.

MANUFACTURE OF WETTING, CLEANING, EMULSIFYING, DYE-DISSOLVING, AND WATER-SOFTENING AGENTS. Chemische und Seifenfabrik R. Baumheier. Feb. 12, 1930. 374,866.

PROCESS FOR MAKING ARTIFICIAL RESINS AND ARTICLES THEREFROM. H. Rommler Akt.-Ges. Dec. 15, 1930. 374,914.

SEPARATION OF COLLOIDAL AND OTHER SUSPENSIONS FROM LIQUIDS. J. Stone and Co., Ltd., and A. W. Empson. Mar. 9, 1931. 374,915.

NITROGENISATION OF IRON, STEEL AND ALLOYS THEREOF. Electro Metallurgical Co. Mar. 14, 1930. 374,880.

METHOD OF AND MEANS FOR EFFECTING THE DISTILLATION OF SOLID FUELS. Soc. De Recherches et de Perfectionnements Industriels. Apr. 4, 1930. 374,923.

SYNTHETIC RESINS, AND COATING COMPOSITIONS MANUFACTURED THEREFROM. Imperial Chemical Industries, Ltd. *E. I. Du Pont de Nemours and Co.*). Mar. 14, 1931. 374,876.

MANUFACTURE OF METALLIFEROUS SULPHURISED PHENOL DERIVATIVES. Chemische Fabrik Vorm. Sandoz. Mar. 15, 1930. 374,928.

MANUFACTURE OF PRODUCTS FROM MENTHOLS. Howards and Sons, Ltd., J. W. Blagden, and W. E. Huggett. Mar. 17, 1931. 374,893.

PROCESS FOR THE MANUFACTURE OF NITRO-AND AMINO ALYOXY CARBAZOLES. A. Carpmael (*I. G. Farbenindustrie*). Mar. 17, 1931. 374,895.

DISTILLATION PROCESSES FOR THE PRODUCTION OF ZINC OR SIMILAR VOLATILISABLE METALS. F. Krupp Grusonwerk Akt.-Ges. Dec. 20, 1930. 374,900.

CONCENTRATION OF FATTY ACIDS. H. Dreyfus. Mar. 17, 1931. 374,901.

PROCESS FOR THE MANUFACTURE OF TRICHLORETHYLENE. Schering-Kahlbaum Akt.-Kes. Apr. 16, 1930. 374,949.

PRINTING OF TEXTILE MATERIALS. Imperial Chemical Industries, Ltd., H. B. Briggs, and R. W. Hardacre. Mar. 19, 1931. 374,950.

DYEING. Imperial Chemical Industries, Ltd., and W. G. Reid. Mar. 19, 1931. 374,951.

REMOVAL OF NAPHTHALENE AND GUM-FORMING CONSTITUENTS FROM FUEL GAS. Koppers Co. July 22, 1930. 374,975.

BITUMINOUS COMPOSITION. Dr. R. Arnot. Apr. 2, 1931. 374,987.

PROCESS FOR IMPROVING DRYING-OILS AND COATING OR IMPREGNATING COMPOSITIONS MADE THEREFROM. J. Y. Johnson (*I. G. Farbenindustrie*). Apr. 10, 1931. 375,002.

MANUFACTURE OF PARA-OXYCAMPHOR. K. Tamura, G. Kihara, Y. Asahina, and M. Ishidate. Apr. 25, 1930. 375,018.

ADHESIVES, GLUES, DISTEMPERS, COATING COMPOSITIONS, AND AQUEOUS PAINTS, AND PRODUCTS RESULTING THEREFROM. C. le B. D'Espinoy. Nov. 3, 1930. 375,032.

MANUFACTURE OF HYDROCHLORIC ACID, AND APPARATUS THEREFOR. Chemical and Metallurgical Corporation, Ltd., J. W. Crabtree and S. B. Casson. May 21, 1931. 375,039.

PROCESS FOR THE MANUFACTURE OF VAT DYESTUFFS OF THE ANTHRAQUINONE SERIES. I. G. Farbenindustrie. June 4, 1930. 375,056.

MANUFACTURE OF LACQUERS, FILMS, PLASTICS AND THE LIKE. Deutsche Hydrierwerke Akt.-Ges. June 18, 1930. 375,067.

PROCESS OF MANUFACTURING SUGAR. F. B. Dehn (*Schwieger Chemical Co.*). June 23, 1931. 375,078.

PROCESS AND APPARATUS FOR THE MANUFACTURE OF COMPOUND PAPERS AND PASTEBOARDS IMPREGNATED WITH CAOUTCHOUC. V. Antoine. Oct. 1, 1930. 375,157.

MANUFACTURE OF TANNING SUBSTANCES. J. R. Geigy Akt.-Ges. Nov. 10, 1930. 375,160.

MANUFACTURE OF VEGETABLE GUM SOLUTIONS. A. Pfister. Oct. 9, 1931. 375,161.

PROCESS FOR THE MANUFACTURE OF ALKYL HALIDES. I. G. Farbenindustrie. Apr. 29, 1931. 375,199.

MANUFACTURE OF FIBROIN SALT SOLUTIONS. I. G. Farbenindustrie. Feb. 23, 1931. 375,242.

DISTILLATION OF SOLID FUELS. H. Dupuy. Apr. 3, 1931. 375,250.

Complete Specifications open to Public Inspection

PRODUCTION OF RUBBER SURFACES. Imperial Chemical Industries, Ltd. June 13. 16729.

FUEL OIL. Imperial Chemical Industries. June 15. 16972, 16973, 16974, 16975.

MANUFACTURE OF REFRACTORY WARE. Imperial Chemical Industries, Ltd. June 16. 17105.

CARBON DIOXIDE LET-DOWN VALVE. Imperial Chemical Industries, Ltd. June 16. 17106.

MANUFACTURE OF SECONDARY DISAZO DYESTUFFS, ETC. Imperial Chemical Industries, Ltd., and A. H. Knight. June 17. 17241.

SOLID GELLED OILS, AND COMPOSITIONS CONTAINING THEM. Imperial Chemical Industries, Ltd., S. A. Sims, and M. G. Thomson. June 18. 17329.

RAISING LIQUIDS BY GASEOUS PRESSURE. Indo-Burma Petroleum Co., Ltd. June 18. 17291.

ESTERIFICATION OF ORGANIC ACIDS, ETC. Invention Ges. für Verwaltung und Verwertung Chemisch-technischer Patente Ges. June 13. (Germany, June 13, '31.) 16710.

WORKING UP AQUEOUS SOLUTIONS OF ACETIC ACID, ETC. Invention Ges für Verwaltung und Verwertung Chemisch-technischer Patente Ges. June 13. (Germany, July 17, '31.) 16711.

PRODUCTION OF ALUMINIUM SILICOSULPHIDE. Metallges Agt.-Ges. June 15. 16904.

DISTILLING SUBSTANCES THAT ARE LIQUID AT DISTILLATION TEMPERATURE. Metallges Akt.-Ges. June 17. (Germany, June 25, '31.) 17239.

PRODUCTION OF ALUMINIUM SILICOSULPHIDE. A. Schnitzpahn, and O. Schober. June 15. 16904.

PRODUCTION OF CARBONIC ACID. W. Wilson. June 16. 17017.

PRODUCTION OF ANHYDROUS ETHYL ALCOHOL. Deutsche Gold-und Silber-Scheideanstalt Vorm. Roessler. June 19, 1931. 29344/31.

PRODUCTION OF WATER-FREE ETHYL ALCOHOL. Deutsche Gold-und Silber-Scheideanstalt Vorm. Roessler. June 19, 1931. 29345/31.

ELECTRODES FOR VAPOUR AND/OR GAS ELECTRIC ARC-DISCHARGE DEVICES. Hanovia Chemical and Manufacturing Co. June 16, 1931. 29640/31.

MANUFACTURE OF CHLORO- AND BROMO-DERIVATIVES OF 2-AMINONAPHTHALENE-1-SULPHONIC ACID. I. G. Farbenindustrie. June 15, 1931. 16950/32.

PROCESS FOR THE MANUFACTURE OF PURE TITANIUM DIOXIDE. I. G. Farbenindustrie. June 15, 1931. 16965/32.

MANUFACTURE OF POLYAZO DYESTUFFS. I. G. Farbenindustrie. June 17, 1931. 17219/32.

MANUFACTURE AND PRODUCTION OF MOULDED POLYMERISATION PRODUCTS. I. G. Farbenindustrie. Oct. 2, 1930. 17285/32.

PRODUCTION OF ALCOHOL FREE FROM FUSEL OIL. Deutsche Gold-und Silber-Scheideanstalt Vorm. Roessler. June 19, 1931. 17312/32.

MANUFACTURE OF COMPOSITIONS CONTAINING SOLID-GELLED OILS. E. I. Du Pont de Nemours and Co. June 20, 1931. 17328/32.

APPARATUS FOR IMPREGNATING LIQUIDS WITH CARBONIC ACID. H. Andvig and J. Freng. June 20, 1931. 17410/32.

MANUFACTURE OF A SULPHONIC ACID OF PIPERIDINE OR OF AN ALKYL HOMOLOGUE OF PIPERIDINE. I. G. Farbenindustrie. June 20, 1931. 17424/32.

CATALYST AND PROCESS FOR PRODUCTION OF ACETIC ACID. H. A. Patterson. June 20, 1931. 17429/32.

PROCESS FOR PREPARING METALS FROM METALLIC COMPOUNDS. E. Popper. June 19, 1931. 17450/32.

Applications for Patents

MANUFACTURE OF ALCOHOLS. Air Reduction Co., Inc. June 25. (United States, June 27, '31.) 17973.

PREPARING STABLE GRANULATED CALCIUM CYANAMIDE. American Cyanamid Co. June 20. (United States, Apr. 27.) 17463.

APPARATUS FOR VERIFICATION OF CHEMICAL COMPOSITION, ETC., OF LIQUIDS. Appareils et Evaporateurs Kestner. June 24. (France, Nov. 27, '31.) 17936.

MANUFACTURE OF AMMONIAC-MAGNESIA PHOSPHATE. C.d'Asseef. June 21. (Belgium, June 22, '31.) 17547.

MANUFACTURE OF CELLULOSE PRODUCTS. J. P. Bemberg Akt.-Ges. June 25. (Germany, July 6, '31.) 18026.

TREATING CARBON, ETC., BY ELECTROLYSIS AND CATALYSTS. W. T. R. Bindley. June 21. 17525.

EXTRACTION OF THE ACTIVE PRINCIPLES FROM HOGS' STOMACHS. Boots' Pure Drug Co., Ltd., and E. R. Harvey. June 22. 17649.

EMULSIFYING APPARATUS. C. W. Brecknell and C. W. Brecknell, Ltd. June 24. 17861.

MANUFACTURE OF ALIPHATIC COMPOUNDS. British Celanese, Ltd., H. Dreyfus and W. H. Groombridge. June 23. 17740.

ABSORPTION PROCESSES AND MANUFACTURE OF OXYGENATED ORGANIC COMPOUNDS. British Celanese, Ltd., H. Dreyfus, and W. H. Groombridge. June 23. 17741.

RUBBER, ETC. H. M. Bunbury, and Imperial Chemical Industries, Ltd. June 23. 17806.

MANUFACTURE OF CARBON BLACK. R. H. Craggs. June 21. 17539.

COAGULATING ALKALINE SOLUTIONS OF CELLULOSE DERIVATIVES. J. Craik. June 20. 17466.

PRODUCTION OF GLYCOL CELLULOSE. J. Craik and Imperial Chemical Industries, Ltd. June 21. 17498.

HYDROGENATION OF CARBONACEOUS MATTER. E. L. Davies and W. Thomson. June 21. 17497.

MANUFACTURE, ETC., OF DERIVATIVES OF VAT DYESTUFFS. D. A. W. Fairweather, Imperial Chemical Industries, Ltd., and R. F. Thomson. June 24. 17883.

MANUFACTURE OF DIAMINES. Goodyear Tire and Rubber Co. June 21. (United States, Sept. 12, '31.) 17551.

MANUFACTURE OF UNSATURATED HIGHER ALCOHOLS. T. P. Hilditch and Imperial Chemical Industries, Ltd. June 24. 17948.

PRODUCTION OF ALUMINA FROM CLAY OR SHALE. J. F. Hyslop, R. MacKenzie and Stein & Co., Ltd. June 25. 17991.

MANUFACTURE OF ANTHRAQUINONE DERIVATIVES. J. Y. Johnson (*I. G. Farbenindustrie*). June 23. 17704.

MANUFACTURE OF SULPHONIC ACID OF PIPERIDINE, ETC. J. Y. Johnson (*I. G. Farbenindustrie*). June 20. (Germany, June 20, '31.) 17424.

PRODUCTION OF DRYERS. I. G. Farbenindustrie. June 20. (Germany, July 17, '31.) 17467.

MANUFACTURE OF SHAPED MEDICINAL PREPARATIONS. I. G. Farbenindustrie. June 24. (Germany, June 27, '31.) 17932.

MANUFACTURE OF PARA-AMINODIPHENYL, ETC. I. G. Farbenindustrie. June 24. (Germany, June 24, '31.) 17934.

MANUFACTURE OF 4-AMINO-2 : 5-DIALKOXY-DIPHENYL AND AZO-DYESTUFFS THEREFROM. I. G. Farbenindustrie. June 24. (Germany, June 24, '31.) 17935.

MANUFACTURE OF DYES. Ilford, Ltd. June 20. 17465.

PRODUCTION OF HYDROGEN-NITROGEN MIXTURES. Imperial Chemical Industries, Ltd., and E. H. Salisbury. June 21. 17588.

FUEL OIL. Imperial Chemical Industries, Ltd. June 21. 17589.

PURIFICATION OF LIQUID HYDROCARBONS. Imperial Chemical Industries, Ltd., E. D. Kamm and B. Taffs. June 23. 17744.

From Week to Week

BIDEFORD BLACK have moved their offices to 1 Haydon Street, Minories, E.1.

DR. E. F. ARMSTRONG and Dr. R. H. Pickard have been appointed additional examiners of thesis presented for the degree of Ph.D. at the University of St. Andrews.

SIR WILLIAM BRAGG is leaving shortly for Brazil and the Argentine to give lectures which have been arranged by the Ibero-American Institute of Great Britain.

THE HONORARY DEGREE OF DOCTOR OF SCIENCE was conferred on William A. Hamor, of Mellon Institute of Industrial Research, at the fifty-second commencement of Grove City College, Grove City, Pa., on June 15.

IN THE COMPANIES COURT on Thursday, Mr. Justice Eve made an order for the compulsory winding up of the Parent Coal Carbonisation Trust, Ltd., the company having failed to carry out its undertaking to make a certain payment by June 29.

A LONDON UNIVERSITY Postgraduate Travelling Studentship of the value of £275 for one year has been awarded to Bernard William Bradford, B.Sc., Ph.D. (Imperial College of Science and Technology). Mr. Bradford proposes to study the absorption of gases on metals, with particular reference to polar factors, at Frankfurt-am-Main, Germany.

THE DEPARTMENT OF OVERSEAS TRADE has reappointed Dorland Advertising, Ltd., as its advertising agents for next year's British Industries Fair, which opens in London and Birmingham on February 20, 1933. The agents for the separate advertising of the Birmingham section will be, as for the last Fair, Amalgamated Publicity Services, Ltd., London.

UNEMPLOYMENT in the chemical and allied industries on May 23, according to returns given in the current issue of "The Ministry of Labour Gazette" was as follows:—Chemicals, wholly unemployed 15,703, temporary stoppages, 1,452; explosives, wholly unemployed 1,688, temporary stoppages 405; paint, varnish, red and white lead, wholly unemployed 1,938, temporary stoppages 153; oil, glue, soap, ink and matches, wholly unemployed 8,096, temporary stoppages 2,136; coke oven and by-product works, wholly unemployed 3,142, temporary stoppagegs 606.

THE FUTURE OF COSACH, the Chilean nitrate combine, is being discussed in London by all sections concerned. The British representatives in the discussions are the members of the committee formed last month under the independent chairmanship of Mr. Nigel Campbell. The other members are the Hon. Alexander Baring, Sir Bertram Hornsby, Mr. A. A. Jamieson, Mr. H. P. Lawson, Mr. A. Levine, Mr. L. A. Stride, Mr. H. F. Tiarks, and Mr. A. H. Wynn. Mr. M. G. B. Whelpley, the president of Cosach, represents the Guggenheim interests. It is believed that the new position created by the change of Government in Chile is being discussed, as well as financial problems. The present financial arrangements come to an end on June 30.

THE ADDRESS of the Lautaro Nitrate Company is now Friars House, New Broad Street, E.C.2.

AN AGREEMENT HAS BEEN REACHED between the Egyptian Government and a German consortium for the exchange of 15,000 bales of Government cotton for £50,000 worth of chemical manures.

DR. CHARLES FREDERIC BAKER, B.Sc., Ph.D., has retired from the position of chief of the chemistry department at Sunderland Technical College. Dr. Baker was one of the first heads appointed to the College when it was opened 30 years ago.

FOLLOWING ON THE FOUNDING of central clearing institutions for Swiss coal and sugar imports, a third body—to be known as "Carbura"—has now been started for imports of petroleum and its derivatives; this body started functioning on July 1, and any person who imported the products concerned in 1931 may become a member of it.

FAVOURABLE RESULTS are reported to have been obtained by the Zante Oil Co., at Athens, about 50 tons of petrol a day being the present output, which it is hoped to raise shortly to 150 tons. Permission to prospect for petrol in the Katerina district of South Macedonia has been given to the Greek concern of Yannulato.

THE JOHN HUMPHREY PLUMMER PROFESSORSHIP of inorganic chemistry at Cambridge University has been established, and the electors will meet on July 18. The stipend of the professor is £1,200 a year or, if he holds a fellowship with dividend, £1,000 a year. Candidates are requested to communicate with the Vice-Chancellor on or before July 7.

THE ONE MATCH in the second round of the Chemical Industry Lawn Tennis Tournament which remained unplayed at the time of going to press last week resulted as follows: J. W. Urban and F. S. Mortimer (Monsanto Chemical Works, London) beat S. J. Sharman and H. R. Whitaker (Williams, Hounslow, Ltd.), 6—3, 7—5. Urban and Mortimer will now meet J. E. Shirreff and G. G. Stanford (Johnson, Matthey and Co., Ltd.) in the third round in accordance with the draw announced last week.

IN A PRESS INTERVIEW Senor Nunew Morgado, the Chilean nitrate superintendent, explained that the new nitrate exploitation scheme consists in helping the firms that have remained outside "Cosach" with a grant of ten million pesos. The head of the iodin department proposes to limit the production of ten thousand tons to be sold at 50 per cent. of the present price. Such a measure, he holds, would harm neither producers nor the English Iodine Association, as there were possibilities of widening the market.

DEGREES OF DOCTOR OF PHILOSOPHY, Glasgow University, have been approved for Thomas Hardie (Thesis: "Investigations in the Chemistry of Gutta-Percha and Balata"), John M. Holm (Thesis: "On the Ignition of Explosive Gaseous Mixtures by Small Flames"), James D. Loudon (Thesis: "The Optical Activity of Camphor and some Derivatives"), John MacArthur (Thesis: "Stereochemical Enzymic Specificity with Special Reference to Exponential Analysis and the Kinetics of Asymmetric Emulsion-Hydrolysis of B. Glucosides").

THE KUALA LUMPUR RUBBER CO. has made a provisional offer to acquire the whole of the issued capital of the Sedgeley (F.M.S.) Rubber Co. by an exchange of shares on the basis of one Kuala Lumpur share for one Sedgeley share. For the purpose of effecting this amalgamation the capital of the Kuala Lumpur Rubber Co. is to be increased to £300,000 by the creation of 50,000 £1 shares.

AN EXPLOSION AND FIRE at the Saltend (Hull) depot of the Shell-Mex and British Petroleum Distribution Co. last week caused some alarm, but the resulting damage was not serious. A 4,000-gallon rail tank was being filled with petrol spirit, and the man in charge, John Varey, had moved away to another tank, when there was an explosion and the first tank burst into flames. The burning petrol gave off dense clouds of smoke, and the flames damaged the overhead filling stage and two other rail tanks before they were extinguished. The cause of the explosion is not known.

RECENT WILLS INCLUDE:—Arthur Ross, 16 Highfield Hill, Upper Norwood, analytical chemist, £25,325 (net personalty nil); Urban Aspey, of Mon Abri, Allerton Park, Leeds, of George Aspey and Sons Ltd., oil merchants and soap manufacturers, Leeds, £40,427 (net personalty £15,488); John Frederick Phillip Barnikel, of 3 East Meade, Chorltonville, Manchester, chemical and mineral merchant, 412 Corn Exchange Buildings, Manchester, £9,704 (net personalty £8,948), including £1,000 to the Victoria University of Manchester, for endowing an entrance scholarship in chemistry.

Obituary

ALDERMAN GEORGE WHITFIELD, three times Mayor of Scarborough, and a director of the United Drug Co., Ltd., on June 23, aged 65.

PROFESSOR ALEXANDER HUMBOLDT SEXTON, F.I.C., F.C.S., late of the Royal Technical College, Glasgow, on June 21, aged 78.

LIEUT.-COL. W. GRANT MORDEN, who floated the British Cellulose and Chemical Manufacturing Co., on June 25, aged 51.

Forthcoming Events

July 4.—Royal Institution: General Meeting. 5 p.m. 21 Albemarle Street, London.

July 9.—Society of Chemical Industry (South Wales Section). Special Joint Meeting with the South Wales Section of the Institute of Chemistry. Visit to the Laboratories of the Cardiff Gas Light & Coke Co., Bute Terrace, Cardiff. 3 p.m.

July 12 to 15.—Society of Chemical Industry. Fifty-first Annual Meeting. Presidential Address, "Ourselves and Kindred Societies." Professor G. T. Morgan. Presentation of Messel Medal. "Forty Years of Stereo-chemistry." Sir William Pope. University College, Nottingham.

Company News

British Drug Houses, Ltd.—The usual quarterly dividend of 1¼ per cent. on the preference shares, is payable this week.

Compania Salitrera Anglo-Chilean.—The board intimate that owing to the present disturbed conditions they have decided to postpone the payment of the half-yearly interest, due July 1, on their 7 per cent. first mortgage debenture stock.

Brownlac, Ltd.—An extraordinary meeting is to be held on July 15, at 12 noon, to consider a resolution to wind up the company voluntarily, and that Mr. Alfred Wright, 6 Duke Street, St. James's, London, be appointed liquidator.

Bleachers' Association, Ltd.—A net profit of £112,633 is reported for the year ended March 31 last, against £4,576 for 1930-31. The preference dividend takes £136,812, leaving, with £237,178 brought in, a surplus of £212,999 to go forward.

Indian Copper Corporation, Ltd.—For the year 1931, the profits amounted to £51,184, an increase of £4,000 on the previous year's figure. Depreciation reserve receives £20,000, against £10,000, and a further £4,110 is written off expenses of issue of shares and debentures, leaving £6,011 to go forward. The annual meeting was held on June 27.

Aberthaw and Bristol Channel Portland Cement.—The trading profit for the year ended March 31 last, including interest and transfer fees, was £49,906. After providing interest, also £4,327 for debenture sinking fund, and a final dividend on the preference shares, a final dividend of 3 per cent. on the ordinary shares, making 6 per cent. less tax, for the year is recommended, leaving to be carried forward £72,738.

Ipswich Beet Sugar Factory. The income from trading credits and interest for the year ended March 31 last is £15,052. Charges amount to £3,293. Reserve of £14,000 is required to provide against fall in value of stocks held for 1932 refining season, leaving a debit balance of £2,240, which it is proposed to transfer from general reserve £20,000, to provide for payment of a dividend of 5 per cent. free of tax.

W. and T. Avery, Ltd.—The net profit for the year ended March 31 last, was £100,022, against £104,270 for the previous year. With the amount of £56,268 brought in, there is available £156,290. The directors recommend a final dividend on the ordinary shares of 10 per cent. less tax, again making 15 per cent. for the year placing £10,000 to reserve, and carrying forward £54,798.

Neuchatel Asphalte Co., Ltd.—The accounts for 1931 show a balance of profit, after providing for depreciation, and for reserves for maintenance, &c., of £15,851, compared with £23,570 in 1930. With £65,894 brought forward the amount for disposal is £81,745. Preference dividends for the year, amounting to £10,000, have been paid, and the directors now recommend a dividend of 1¼ against 2½ per cent. on the ordinary, less tax, payable July 7. This will absorb £5,249, leaving £66,496 to be carried forward.

Ely Beet Sugar Factory.—The report for the year to March 31, 1932, shows that no depreciation has been charged in accounts upon buildings, plant and other fixed assets. The directors have allocated from general reserve £50,000 to special reserve to provide for contingent losses. The income from trading credits and interest was £33,328, and charges amounted to £1,906. Reserve of £17,000 is required to provide against fall in value of stocks held for 1932 refining season, leaving a credit balance of £14,422. This balance, together with £12,578 which the directors propose to take from general reserve, will enable a dividend of 6 per cent., free of tax, to be paid.

United Indigo and Chemical Co., Ltd.—A dividend at the rate of 5 per cent. per annum, subject to income tax at 5s. in the £, has been declared for the six months ending June 30, on the preference shares.

Hadfields, Ltd.—By reason of the continued depression in trade and the consequent need of conserving the company's resources, the directors announce that they have decided to defer payment of the preference dividend due on June 30.

Consolidated Mining and Smelting Co. of Canada.—At the half-yearly meeting on Tuesday, it was announced that there was a small surplus from the operations of the past six months, but it had been decided to defer action with regard to a dividend until the end of the year.

Potash Syndicate of Germany.—It is reported that the proceeds of sales to countries outside Germany during 1931 amounted to approximately £3,800,000 gold. The estimated proceeds of sales to countries outside Germany during 1932 approximately £3,662,000 gold. Of the latter deliveries and orders actually booked to June 6, 1932, amount to £1,512,000 gold. Estimated additional deliveries during the year were £2,150,000.

English Beet Sugar Corp.—The report for the year ended March 31, 1932, states that the income from trading credits and interest was £36,407, and charges amounted to £8,056. Reserve of £11,500 is required to provide against fall in value of stocks held for 1932 refining season, leaving a credit balance of £16,851, which, together with £33,149 which the directors propose to take from general reserve, will enable a dividend of 10 per cent., free of tax, to be paid.

Home Grown Sugar.—The report for the year ended March 31, 1932, states that the net refining credits of Kelham factory amounted to £5,455, of which this company is entitled to £3,637, under working agreement with English Beet Sugar Corporation, Ltd. The loss on estate and farm was £2,050. After providing for all charges there is a deficit of £1,620. In order to allow for depreciation upon factory buildings and plant, in accordance with rates specified in articles, a further £25,976 is required. The total sum of £27,596 it is proposed to take from general reserve.

British Glues & Chemicals, Ltd.—The net profit for the year ended April 30 last, after allowing for depreciation and bad and doubtful debts, was £31,467, against £15,804 for the previous year. Adding £25,191 brought forward, there is available £56,658. The dividend on the 8 per cent. cumulative participating preference shares for the half-year ended April 30, 1931, absorbs £21,000. Last year no preference dividend or arrears of Preference dividend was paid. The directors recommend the transfer of £4,000 to taxation reserve, leaving to be carried forward £31,658. The annual meeting will be held at Connaught Rooms, London, W.C., on July 7, at 12 noon.

King's Lynn Beet Sugar Factory.—For the year ended March 31 last the report states that no depreciation has been charged in accounts upon buildings, plant and other fixed assets. The directors have allocated £10,069 to special reserve to provide for contingent losses. Of this sum £7,000 has been transferred from general reserve and £3,069 from development and research reserve. The income from trading credits was £183. The charges, including interest, amount to £5,666. Reserve of £11,000 is required to provide against fall in value of stocks held for 1932 refining season, leaving a debit balance of £16,483. The directors propose to apply to this deficit balance of general reserve, namely, £1,824, leaving a net debit balance in profit and loss account of £14,659.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

BENTLEY (J. E.) & CO., Ltd., Halifax, dyers, bleachers, &c. (M. 2/7/32.) Registered June 16. £5,000 debentures: general charge. *£10,000. May 14, 1931.

CALICO PRINTERS' ASSOCIATION, LTD., Manchester. (M. 2/7/32.) Registered June 14, two dispositions by way of additional security (supplemental to Trust Deed dated November 29, 1900, securing £3,200,000 1st debenture stock); charged on land at Neilston (Renfrew) &c. *£3,200,000. September 30, 1931.

FRICKER'S METAL & CHEMICAL CO., LTD., London, E.C. (M. 2/7/32.) Registered June 21, £30,000 debentures; general charge.

Satisfactions

PILKINGTON BROTHERS, LTD., St. Helens, glass manufacturers. (M.S., 2/7/32.) Satisfaction registered June 20, of debenture stock registered May 4, 1925, to extent of £180,000.

UNITED KINGDOM GLASS CO., LTD., Hayes (old company). (M.S., 2/7/32.) Satisfactions registered June 17, of debentures registered December 2, 1927, and May 11, 1928.

BENTLEY (J. E.) & CO., LTD., Halifax, dyers, bleachers, &c. (M.S., 2/7/32.) Satisfaction registered June 16, of debentures registered November 24, 1930.

County Court Judgment

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

SPECTRUM, LTD., 124 Baker Street, London, W., dyestuff manufacturers. (C.C., 2/7/32.) £25 17s. 10d. April 26.

London Gazette, &c.

Winding-Up Petition

NON-INFLAMMABLE FILM CO., LTD. (W.U.P., 2/7/32.) A petition for the winding-up of this company by the High Court of Justice, was on June 16, presented by C. H. Gibson, Ltd., of 509 London Road, Croydon, and is to be heard at the Royal Courts of Justice, Strand, London, on July 4.

Partnership Dissolved

WILLIAM WHEWELL & CO., (William Whewell, of 156 Dumers Lane, Radcliffe, Lancaster, and Henry Fishwick Robinson of 334 Droylsden Road, Newton Heath, Manchester), manufacturing chemists, by mutual consent, March 26, 1932. Debts received and paid by William Whewell.

Notice of Intended Dividend

THE J. M. NEWTON VITREO-COLLOID (1928), LTD., Kingsbury House, King Street, St. James's, London. Last day for receiving proofs July 15. Liquidator, Harry Carlyle Waddington, 11 Waterloo Place, Pall Mall, London.

New Companies Registered

British Copper Refiners, Ltd., College Road, Prescot, Lancs. Registered as a "private" company on June 14. Nominal capital £120,000 in £1 shares. Refiners of copper or other metals, smelters, metallurgists, miners, coke manufacturers, etc. Directors: Sir Alexander Roger, J. Ferguson, G. H. Nisbett.

Continental Hydrogenation, Ltd., Finsbury House, Blomfield Street, London, E.C. Registered June 28. Nominal capital £300 in 2s. shares. To acquire any patents, brevets d'invention and licences relating to the hydrogenation of coals or other products in Great Britain or elsewhere. The provisional directors are: D. de Ros, A. Paterson.

Industrial Science Organisation, Ltd. Registered June 16. Nominal capital £800 in 1s. shares. To investigate, report and advise upon problems in connection with industrial, manufacturing and other processes, property and the management thereof, well sinking and boring by any process, designing, manufacturing and dealing in machinery and apparatus in connection with such problems, including purifying, softening or otherwise treating water, sewages, effluents or liquids, and manufacturing chemicals, etc., and to adopt an agreement with D. A. Owen. Directors: D. A. Owen, 23 Neville Road, Luton, Beds., W. E. K. Piercy.

John Dew, Ltd., 180 New Bond Street, London, W.1. Registered June 20. Nominal capital £25,000 in 10,000 10 per cent. preference shares of £1 and 60,000 ordinary shares of 5s. each. To adopt an agreement with A. Distleman, and to carry on the business of soap boilers, manufacturers and importers of, agents for and dealers in soap, perfumery, toilet requisites, chemicals, oils, etc. Directors: A. Distleman, J. W. S. Leask.

Lionite Laboratories, Ltd., 6-7 West Smithfield, London, E.C.1. Registered June 20. Nominal capital £1,000 in 700 5 per cent. cumulative preference and 300 ordinary shares of £1 each. Chemists, druggists, drysalters, oil and colourmen, manufacturers of and dealers in chemical, bleaching, pharmaceutical medicinal, disinfecting, industrial and other preparations, etc. Directors: A. F. Herbert, A. E. Sylvester, S. R. T. Mummery.

P. S. W., Ltd., 97 St. Thomas' Street, Portsmouth. Registered June 28. Nominal capital £1,000 in £1 shares. Manufacturers, wholesale, retail and analytical chemists, importers, exporters and manufacturers of, dealers in and agents for the sale of all kinds of drugs, chemicals, chemical products, etc. Directors: A. P. Turd; G. F. Fogwell.

Chemical Trade Inquiries

Abstracted from the "Board of Trade Journal." Names and addresses may be obtained from the Department of Overseas Trade (Development and Intelligence), 35 Old Queen Street, London, S.W.1 (quote reference number).

Morocco (French Zone).—The Casablanca branch of a French firm desires to establish connection with a United Kingdom firm able to export alum crystals in barrels. (Ref. No. 1093.)

Egypt.—A commission agent established at Cairo, who is at present visiting the United Kingdom, desires to obtain the representation of United Kingdom manufacturers of pharmaceutical goods. (Ref. No. 1094.)

British West Indies.—H.M. Trade Commissioner's Office in Jamaica reports that a Kingston firm desires quotations for 5 and 10-gallon oil drums in lots of 500, 1,000 and 2,000. (Ref. G.X. 11597.)

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